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U. S. Army. Corps of Engineers

63D CONGRESS, 1st Session } HOUSE OF REPRESENTATIVES { DOCUMENT No. 226

WATER TERMINAL AND TRANSFER FACILITIES

LETTER FROM THE ACTING SECRETARY OF WAR

TRANSMITTING, WITH A LETTER FROM THE CHIEF OF ENGINEERS, REPORTS ON AN INVESTIGATION AND EXAMINATION OF ALL WATER TERMINAL AND TRANSFER FACILITIES CONTIGUOUS TO HARBORS, RIVERS, AND OTHER WATERS UNDER IMPROVEMENT BY THE UNITED STATES

SEPTEMBER 6, 1913.—Referred to the Committee on Rivers and Harbors and ordered to be printed, with illustrations

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LETTER OF THE ACTING SECRETARY OF WAR.

WAR DEPARTMENT,
Washington, September 5, 1913.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

SIR: I have the honor to transmit herewith a letter from the Chief of Engineers, United States Army, dated August 30, ultimo, submitting reports of the various district officers having charge of river and harbor improvements on water terminal and transfer facilities contiguous to harbors, rivers, and other waters under improvement by the United States, said reports having been prepared in compliance with the provisions of section 4 of the river and harbor act approved July 25, 1912.

Very respectfully,

HENRY BRECKINRIDGE,
Acting Secretary of War.

LETTER OF THE CHIEF OF ENGINEERS, U. S. ARMY.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, August 30, 1913.

From: The Chief of Engineers, United States Army.
To: The Secretary of War.
Subject: Terminal and transfer facilities contiguous to rivers and harbors now under improvement.

There are submitted herewith, for transmission to Congress, reports of the various district officers having charge of river and harbor improvements on water terminal and transfer facilities contiguous to harbors, rivers, and other waters under improvement by the United States. These reports have been prepared in compliance with the provisions of section 4 of the river and harbor act approved July 25, 1912, as follows:

SEC. 4. That the Secretary of War is authorized and directed to have made during the years 1912 and 1913 through the Chief of Engineers, United States Army, so far as practicable, an investigation and examination of all water terminal and transfer facilities contiguous to any harbor, river, or other waters under improvement by the United States, and reports on the same shall be submitted to Congress in annual reports or otherwise. Such examination and report shall include among other things the following:

(*a*) The general location and description of water terminals and the extent and method of their use by water carriers and their general efficiency, and whether open to use by all water carriers on equal terms, and such information as may be accessible as to the terms and conditions of use.

(*b*) Whether physical connection exists between such water terminals and the railroad or railroads serving the same territory or municipality, and also whether there exists between any of the water carriers operating upon waters under improvement or heretofore improved and any railroad or railroads a mutual contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(c) Whether improved and adequate highways have been constructed to each water terminal.

(*d*) If no water terminals exist, there shall be included an opinion in general terms as to the necessity, number, and appropriate location of terminals upon such waters.

WM. T. ROSSELL,
Chief of Engineers, U. S. Army.

WATER TERMINAL AND TRANSFER FACILITIES.

REPORT OF LIEUT. COL. W. E. CRAIGHILL, CORPS OF ENGINEERS, PORTLAND, ME., DISTRICT.

[The letters (a), (b), (c), and (d) indicate subheadings as shown by footnotes.]

ST. CROIX RIVER, ME.

1. (*a*) The St. Croix River forms part of the eastern boundary between the United States and Canada. The State of Maine lies on the western, and the Province of New Brunswick on the eastern side of the river. The city of Calais, Me., and the town of St. Stephen, New Brunswick, are situated opposite each other at the head of navigation, where there is an international bridge across the river, between the two municipalities.

2. St. Croix River does not flow directly into the open sea, but into Passamaquoddy Bay, a nearly inclosed body of water, most of which is Canadian. There are two principal routes between the bay and the sea, viz, via Head Harbor Passage, which is wholly Canadian waters, and via Lubec Narrows and Quoddy Roads, which are international waters. The distance from the head of navigation to the sea via Head Harbor Passage, which is broad and deep, is 32 miles, and the distance via Lubec Narrows, which are narrow and shoal, is 35 miles. Seventeen miles of these distances are in the river, the lower 10 miles of which is straight, and will average a mile wide and more than 50 feet deep at mean low tide. The upper 7 miles is comparatively narrow, shoal, and crooked.

3. *Location.*—The commercially developed part of the river, or what may be called the harbor of Calais and St. Stephen, extends from the bridge down river about 2 miles. The high-water width of this part of the river ranges from 800 to 2,000 feet, while the low-water width will average about 700 feet, leaving a large area of tidal flats on each side. The present low-water depth of the greater part of the harbor is from 6 to 8 feet, while but about 3 feet at mean low water can be carried to the head of navigation. The mean range of tide at Calais and St. Stephen is 20 feet. Work is now under way on an approved project for improvement, which, when completed, will provide a channel 200 feet wide and 12 feet deep at mean low water up to the lower end of the harbor and 150 feet wide and 9 feet deep at mean low water up to the head of navigation. From these characteristics, it will be seen that the commercially developed part of the river does not afford any anchorage grounds. The nearest anchorage is about 4¾ miles below the head of navigation, where a small area affords 20 or more feet at mean low water. As the upper 7 miles of river is subject to heavy tidal currents, and can, at present, be

(*a*) General location and description.

navigated only at high water, and by sailing vessels only under tow, the customary anchorage ground is in the broad part of the river about 7½ miles below the head of navigation. The great range of tide, and consequent heavy currents, are of advantage in that they tend to keep the river clear of ice. As a general rule the river is open in the winter to the head of navigation. In severely cold weather the services of a towboat are necessary to keep it clear of ice. An unusually cold winter will sometimes close it up for a few weeks. There are 46 wharves or water terminals on the commercially developed part of the St. Croix River water front, 44 of which are within 1 mile of the head of navigation. Twenty-six out of the 44 are on the American side and 18 are on the Canadian side. About 2 miles below the head of navigation are 2 more wharves, one on each side of the river. Of the 2 miles of river just below the head of navigation about 1 mile in Calais and 1⅛ miles in St. Stephen are undeveloped for use by vessels.

4. *Description.*—The wharves of the St. Croix extend into the river from the shore at about right angles to the current. Only 4 out of the 46 wharves extend beyond low-water line. The others cover various proportions of the distance between high and low water mark. Hence it is seen that at present vessels can be moved to and from the wharves only at high water. At low water the vessels lie aground, which they can do without injury, because the flats are even and of soft mud. This form of wharf is well adapted to the wide tidal flats and the great range of tide in the St. Croix River. With two exceptions the wharves are timber cribs, weighted and held in place by stone ballast. They are generally old and in rather poor condition, two on the Calais side and five on the St. Stephen side being unfit for use. As they are adapted only for high-water navigation and are bare at low tide, the depths of water at the wharves on the St. Croix are referred to mean high tide. The wharves may be classified according to their depths of water as follows:

Calais, Me., total number, 27:	
Wharves with 10 feet or more at mean high water	27
Wharves with 12 feet or more at mean high water	23
Wharves with 15 feet or more at mean high water	11
Wharves with 20 feet or more at mean high water	3
St. Stephen, New Brunswick, total number, 19:	
Wharves with 10 feet or more at mean high water	19
Wharves with 12 feet or more at mean high water	15
Wharves with 15 feet or more at mean high water	7
Wharves with 20 feet or more at mean high water	2

5. On the Calais side 14 wharves have no accessories of any sort, 5 have storage or freight sheds, 3 have means of hauling out vessels for repair and shops for doing ship work, 4 have shears and steam power for discharging coal, with runways and coal sheds.

6. No individual or concern has a monopoly of terminals on the St. Croix River. On the Calais, or American side, the largest owners of water front are two lumber concerns, one of which owns or controls 8 wharves and the other 7 wharves. The Maine Central Railroad owns 1 wharf and leases a small piece of shore front adjoining. Each of the other wharves has a different owner. About one-half of the undeveloped water front on the Calais side of

the harbor has high, steep banks, and its use would be expensive. The remaining part is readily available for use when needed. The city of Calais owns no water front except one piece in the vicinity of the anchorage grounds about 4½ miles below the head of navigation. On the St. Stephen, or Canadian, side the Canadian Pacific Railway is the largest water-front owner, holding at least 3,000 feet of shore, of which about 600 feet is developed. The next largest owner is a private concern having 4 wharves with about 600 feet front. Another concern has 3 wharves or about 400 feet front. The town of St. Stephen owns 2 wharves, built on town land with money granted by the Government. These are the two best wharves on the river, one being near the head of navigation and having 26 feet at mean high water, and the other being about 2 miles below the head of navigation and having 30 feet at mean high water.

7. *Method of use.*—The wharves of the St. Croix are used by water carriers to receive and discharge passengers and freight. The method is for the vessel to enter her berth at the wharf at or near high water and lie alongside until loaded or discharged. One small passenger and freight steamer plying to Calais uses two wharves, one near the head of navigation, which she can reach only at high tide and where she handles her freight, and one 2 miles below, where she can lie afloat at low tide. The method is to land passengers at the lower wharf when she can not reach the upper one and, after having discharged and loaded at the upper wharf, to drop downstream ahead of her leaving time, when the tide serves, so as to be able to leave from the lower wharf on schedule. On the St. Stephen side two small steamers use the upper and lower public wharves in the same way. Coal is shoveled into buckets in the holds of vessels, hoisted by steam power, and wheeled to the sheds in barrows. Lumber is transferred by hand from wharves to vessels.

8. *Extent of use.*—In comparison with their capacity, the water terminals of the St. Croix at Calais and St. Stephen are used to a small extent, with the exception of the Maine Central Railroad and the steamboat terminals at Calais and the public wharf at St. Stephen. During the season in which coal is shipped the Maine Central Railroad wharf is in use practically all the time.

9. The volume of traffic over the wharves in the harbor amounts to about 166,665 short tons of freight and 16,000 passengers annually. Of this volume, 134,040 tons of freight and 12,000 passengers are handled on the Calais side and 32,625 tons of freight and 4,000 passengers on the St. Stephen side. The traffic may be further divided as follows:

Calais traffic.—Coal, 74,740 short tons, of which 60,000 tons at 1 wharf, 14,470 tons at 5 wharves; lumber, 44,000 short tons, of which 31,000 tons by two concerns at 12 wharves, 13,000 tons by two concerns at 2 wharves; general merchandise, 15,300 short tons, of which 13,000 tons at 1 wharf, 2,300 at 2 wharves; total, 134,040 short tons.

Vessels repaired, 9,000 tonnage, by three concerns, at 3 terminals.

Two wharves on the Calais side are practically in ruins and are out of use.

St. Stephen traffic.—Coal, 11,600 short tons at 4 wharves, general merchandise, 9,400 short tons; fertilizer, 3,500 short tons, at 3 wharves; lumber, 8,125 short tons at 7 wharves; total, 32,625 short tons.

Five wharves on the St. Stephen side are in poor condition and are not used by water carriers.

About 78 per cent of the total water-borne tonnage of the harbor is coal and lumber. About 70 per cent of the coal is transferred from water to rail.

10. *General efficiency.*—In general, the wharves of the St. Croix are not suited to the vessels of modern water transportation. Most of them were built for the storage and shipment of lumber, which was formerly sawed in large quantities at water-power mills about 1 mile above the head of navigation. Shipments were made in small vessels, and it was convenient to have them lie aground while loading, because with the great range in tide they did not drop so far below the top of the wharf at low tide as they would if afloat. Recently a railroad has been built to Calais, and the coal trade has been established, and some of the old wharves have been converted to meet these new needs. The same is true on the St. Stephen side, except that there the town and the railroad have built new wharves, though that of the railroad is dry at low water. Practically all vessels still lie aground at low tide, and there is no machinery on the wharves to handle freight, except coal and pulp wood.

11. *Whether open to use by all vessels.*—Of the 27 wharves on the Calais side, 17 are open to use by all water carriers on equal terms. These include part of the upper steamboat wharf, that is suitable for handling general merchandise, and 8 lumber wharves, all but one of which are owned by a private concern. The Maine Central Railroad wharf is open to all for the transfer of coal and other freight between water and rail. There is also one privately owned coal wharf, one small boat landing, and two other wharves suitable for handling general merchandise, and three wharves or plants for repair of vessels. Ten wharves, two of which are out of use, are open only to vessels doing business with the occupants. In St. Stephen 10 wharves are open to all on equal terms. These include two public wharves, one railroad wharf, and seven lumber wharves. Nine wharves are open only to vessels doing business with the occupants.

12. *Terms and conditions of use.*—The terms at Calais, as far as could be learned, are as follows:

At the upper steamboat wharf and the open lumber wharves, in addition to the cost of discharging, wharfage is charged as follows:

Coal, $0.12 per long ton; fertilizer, $0.20 per short ton; brick and stone, $0.20 per short ton; lumber, $0.20 per 1,000 feet b. m.

Lower steamboat wharf, wharfage:

Coal, $0.10 per long ton, plus cost of discharging.

Maine Central Railroad wharf, for discharging and loading into cars, $0.26½ per long ton. No purely wharfage charge is made on freight giving a rail haul.

Two other wharves, wharfage charge for coal, etc., $0.03 per long ton, besides cost of discharging. The public small-boat landing is free.

The public wharves in St. Stephen are free to all small boats and vessels, such as fishing vessels and small freighters. For cargoes such as coal, wharfage of $0.05 per ton is charged. One steamboat pays $100 and the other $150 per year for the use of wharf and freight sheds. At the railroad wharf no charge is made on freight giving a rail haul. A charge will be made on local tonnage, but as the wharf is new the schedule of charges is not yet arranged. At

three lumber wharves, one of which is not fit to use, wharfage of $0.02 per ton is charged. This rate is low, to attract business, and will probably be raised if business increases. At four lumber wharves for the use of which there is no demand, wharfage charges are as follows:

Coal, $0.12 per long ton; fertilizer, $0.20 per short ton; brick, stone, etc., $0.20 per short ton; lumber, $0.20 per 1,000 feet b. m.

The cost of discharging or loading is in addition to this.

13. (*b*) The commercial water front of the St. Croix is reached by two railroads, the Maine Central Railroad on the American side and the Canadian Pacific Railway on the Canadian side. These roads interchange freight traffic by means of a railroad bridge about one-half mile above head of navigation. Each of these railroads maintains a water terminal at which commodities may be transferred between water and rail carriers. Up to the present time, the only important traffic of this kind is in coal, which is transferred in large quantities at the Maine Central Railroad terminal, to be hauled by rail to mills in the St. Croix Valley above Calais. The Canadian Pacific Railway terminal is new and at present is but little used.

14. On the Calais side the Maine Central Railroad main line and a short marginal railroad extend along about 4,000 feet of water front. If needed, the marginal railroad could be extended to the lower steamboat wharf, making 2 miles in all. Thirteen out of the 27 wharves on this side have physical connection with the railroad. Ten of these are lumber wharves, of which six are open to use by all vessels. In general the lumber wharves are safe for cars, but not for locomotives. One wharf is specially fitted with machinery for transferring pulp wood from water to rail. The other two are arranged for transferring coal from water to rail, as well as general merchandise either way. All the wharves and water front on this side can be easily provided with rail connection if needed.

15. On the St. Stephen side the Canadian Pacific Railway extends along the water front for about 4,500 feet. The upstream end is at the Canadian Pacific wharf, but it could practicably be extended to include the public landing. Above the public landing there will probably be no further development of the water front for water transportation, because the river is shoal and rocky and the land alongside is used for stores. Six wharves out of 19 on this side have physical connection with the railroad and are all open to use by all water carriers. The railroad wharf has a marginal track arranged for direct transfer between vessels and cars. Derricks and power for hoisting are furnished by the vessel. The other five wharves are lumber wharves, and are generally safe for cars but not for locomotives. The undeveloped portions of the water front on this side down as far as the lower public landing, 2 miles below the head of navigation, can be practicably provided with a marginal railway if needed.

16. *Interchange of traffic by prorating.*—There is no mutual contract between any of the water carriers operating upon the St. Croix and any railroad or railroads for interchange, by prorating, of traffic handled at Calais or St. Stephen.

(b) Physical connection between water terminals and railroads.

17. (*c*) The main streets of Calais and St. Stephen are somewhat improved, but are not provided with modern pavements. The highways immediately connecting with the terminals are generally gravel or earth surfaced and can not be said to be much improved except as to grading. As a general thing they can be considered adequate to the needs of the traffic.

18. On the Calais side the immediate approaches to the wharves are generally steep, but as most of the teaming is of lumber going to the wharves this feature is not a great disadvantage. Highways have been constructed to each water terminal on this side, except to the railroad wharf, which is used only for rail traffic. Most of the lumber wharves are not built for team traffic, and the highways reach only the shore ends. Two wharves are in such poor condition as to be unsafe for teams.

19. On the St. Stephen side highways have been constructed to all the wharves, but here, as on the other side, traffic by team reaches only the heads of the lumber wharves on account of their construction. Several unused wharves on this side are unsafe for teams on account of poor condition.

HARBOR AT SULLIVAN FALLS, ME.

20. (*a*) *Location.*—Sullivan Falls is part of Sullivan River, a tidal estuary which extends south and empties into the head of Frenchmans Bay east of Mount Desert Island. It is about 150 miles distant northeastwardly from Portland, Me., by water, and is about 10 miles north of Bar Harbor, Me. The principal water terminals are at West Sullivan, on the east side of the river, about 1 mile above the falls, and at Franklin, at the head of the estuary, about 5½ miles from the falls. In addition there is the Maine Central Railroad terminal on the west side, about 2½ miles below the falls, and a wharf on the east side about a mile below the falls.

21. *Description.*—Frenchmans Bay extends northward from the sea about 11 miles. It is broad, deep, and unobstructed.

Sullivan River consists of two parts, viz, an interior bay about 4 miles long and 5 square miles in area, and a comparatively narrow passage about 6 miles long, leading south from the interior bay to Frenchmans Bay. About 4 miles above the mouth of the river a narrow point of land projects westwardly into the river to such a distance as to reduce the width of the passageway to about 400 feet, or about one-fourth its general width. The mean range of tide at the mouth of the river is 10.5 feet. The contraction above described retards the tidal flow to such an extent that the mean range of tide above the point is but about 6 feet. The result is that at certain stages of the tide considerable differences of level occur in the water surfaces above and below the point, which produce a noticeable slope and very swift current in the contracted channel. The slope is so great that the channel at the point is called Sullivan Falls.

22. A depth of at least 16 feet at mean low water is available up as far as the falls. Above the falls 13 feet at mean low water can

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(*a*) General location and description.
(*c*) Connection with highways.

be carried to Franklin at the head of the estuary. The river was originally obstructed by ledges in the falls and by abandoned bridge piers a short distance above the falls. The worst of the ledges and three of the piers have been removed by the United States to the depth of 10 feet at mean low water. A recent appropriation of $5,000 is available for further ledge excavation to complete the approved project.

23. *Method of use.*—There are no vessels that make regular trips on Sullivan River above the falls. The traffic of this part of the river and its terminals is almost entirely outward, and consists principally of granite shipped from West Sullivan. A comparatively small amount of lumber and wood is shipped from Franklin and other points on the upper bay. These commodities are generally carried by small schooners which use the water terminals in receiving cargoes. As the passage of the falls must generally be made during the flow of a heavy current, sailing vessels are towed both ways between the lower part of the river and the terminals above the falls. A towboat is maintained on the river for this service. The Maine Central Railroad wharf is used by the boats of that company to transfer passengers, baggage, and freight between the railroad and nearby points on the mainland and Mount Desert Island, principally Bar Harbor. The wharf on the east side below the falls is also used as a terminal by the railroad boats.

24. *Extent of use.*—The present annual traffic is estimated to be about 75,000 short tons, nearly all granite. The tonnage is increasing. The railroad business is chiefly passenger traffic.

25. *General efficiency.*—The region on the east side of the river is not served by any railroad, and depends upon water carriers for shipment of its products. The terminals of the river are fairly efficient in accommodating the vessels that navigate the river.

26. *Open to all vessels.*—Information as to whether the water terminal facilities of the river are open to all vessels on equal terms has not been obtained. It is probable that, as on other waterways in this district, the terminals are not by legal right open to all, but that the use of terminal facilities can be secured upon reasonable terms by arrangement with the owners.

27. (*b*) No physical connection exists between any water terminals on the east side of the river, and any railroad or railroads, and no railroad is within practicable connecting distance. A branch of the Maine Central Railroad approaches close to the west shore of the river, about 1 mile above the falls, and continues down along the river to the railroad wharf, where it terminates. This wharf, known as Mount Desert Ferry, is arranged for the transfer of passengers, freight, and baggage between rail and water carriers, but is used principally by railroad boats or vessels interchanging with the railroad.

28. *Prorating.*—Passengers, baggage, and freight are interchanged at the railroad wharf between rail carriers and the railroad boats, between points on the Maine Central Railroad and its connections, and points reached by the railroad boats. There is no contract between any water carriers and any railroad or railroads for interchange of traffic at other Sullivan River terminals by prorating.

(b) Physical connection between water terminals and railroads.

29. (*c*) The Sullivan River water terminals have connection with the public highways which, although not highly improved, are adequate to the demands of the present traffic.

BAR HARBOR, ME.

30. (*a*) *Location.*—Bar Harbor is a village in the town of Eden, Me., situated on the eastern side of Mount Desert Island, about 140 miles northeasterly from Portland, Me. It is on the western shore of Frenchmans Bay, a large arm of the sea lying east of Mount Desert. The harbor, which is also known as Bar Harbor, is a part of the bay adjacent to the village. The commercial water terminals lie along a somewhat sheltered portion of the village water front, not exceeding one-half mile in length.

31. *Description.*—The island of Mount Desert is not served directly by any railway. It is connected by bridge with the mainland, and the nearest railway station that can be reached by land is Ellsworth, about 20 miles by road from Bar Harbor. By water, the nearest railway station is Mount Desert Ferry, about 8 miles from Bar Harbor. Both these stations are on the Maine Central Railroad.

32. Bar Harbor is formed by a part of Frenchmans Bay, that is somewhat inclosed and sheltered by several islands. It was naturally somewhat exposed to the winds and sea of southerly storms, but a breakwater now under construction by the Federal Government already affords considerable protection from this direction. The sheltered anchorage ground is about 1 square mile in area, with a much greater extent suitable for large vessels that do not need much protection. The depth of water ranges from 30 to 200 feet at mean low tide. A bar, bare at low tide, extends from Bar Harbor village to one of the near-by islands. Near the bar there is the best sheltered area in the harbor. It is limited in extent and is from 6 to 20 feet deep at mean low water, and affords an excellent anchorage for small boats, although somewhat exposed to ocean swells.

33. The commercial water terminals are contiguous to the sheltered area above mentioned. There are six principal wharves, viz: Two transportation wharves, one general business wharf, two coal wharves, and one lumber wharf. In addition there are two wharves used for small boat landings and boat livery, and several other small wharves for miscellaneous purposes. The depth of water at the transportation wharves is about 15 feet at mean low tide. At the others it is probably less. The mean range of tide is about 10 feet. In the original state of the harbor ocean swells reached the wharves under certain conditions of wind, making it dangerous for vessels to lie alongside. This difficulty has been somewhat removed by the partially built breakwater, but still exists to some extent. There are no special appliances for handling freight except a mechanical elevator for discharging grain in bulk, and shears and runways for hoisting and wheeling coal or similar bulk commodities. There are freight and passenger houses on the transportation wharves and storehouses on the others. The wharves are generally wooden platforms on pile foundations and are in good condition.

(*a*) General location and description.
(*c*) Connection with highways.

34. *Method of use.*—Mount Desert Island, although to some extent fishing and farming country, is more generally known as one of the foremost summer resort regions of the north Atlantic coast. Bar Harbor is the largest and most important community on the island, both as a general business center and as a summer resort. It is to some extent a distributing point for a considerable part of the island. Being on an island and so far from the railroad, Bar Harbor depends almost entirely upon water transportation of freight and passengers.

35. One transportation terminal is owned by the Maine Central Railroad, and used as a landing place by its boats which transport freight and passengers between Bar Harbor and Mount Desert Ferry, the nearest railroad water terminus. The other is owned by the Eastern Steamship Corporation, and used by its boats that ply between Bar Harbor and Rockland and intermediate points, by the Maine Coast Transportation boats plying from Boston to various points on the Maine coast, and by the Winter Harbor Transportation Co., a local concern running boats to Winter Harbor and other near-by points. The coal, lumber, and general business wharves are used primarily to deliver coal, lumber, hay, grain, flour, fertilizer, oil, etc., to the dealers occupying them. In addition, they are available for use for general wharfage purposes by all vessels having cargoes to receive or discharge.

36. *Extent of use.*—Under present conditions—that is, in the absence of rail communications—efficient water communication is indispensable to Bar Harbor and the rest of Mount Desert. There is a large and lavish summer population, the demands of which result in a large passenger and freight traffic over the wharves at Bar Harbor. The greater part of this is handled over the Maine Central Railroad wharf, where steamers connecting with the trains arrive and depart four times a day during the summer season. The traffic next in importance is over the wharf of the Eastern Steamship Corporation, where steamers to Rockland and intermediate points arrive and depart once a day. In addition, this wharf is the landing place of a line of freight steamers from Boston and Portland and a local line running from Bar Harbor to near-by points. The total annual freight and passenger traffic is estimated to be as follows, practically all freight being inward:

	Short tons.
Coal	10,000
Grain and flour	26,000
Hay and straw	15,000
Gravel	5,000
Lumber and wood	10,000
Total	66,000

Number of passengers inward and outward, 240,000.

37. *General efficiency.*—The Bar Harbor water terminals are generally in good condition. The transportation wharves have facilities for handling freight and passengers equal to any in this part of the country, and may be called highly efficient. With the exception of grain, the traffic in bulk commodities has not justified the installation of mechanical handling appliances. Coal is shoveled into buckets in the holds of vessels and hoisted by power. Considering the amount of traffic, the general efficiency is high.

38. *Whether open to use by all water carriers.*—The two coa wharves, the general business wharf, and the lumber wharf are ope to use by all vessels on equal terms. At the transportation wharve the berths at the ends are reserved for the use of the steamers. Othe vessels are sometimes allowed to use the berths at the sides, whic have shoaler water and are less desirable.

39. *Terms and conditions of use.*—The terms and conditions of us could not be learned, except that wharfage is charged according t the quantity of the commodity handled.

40. (*b*) There being no railroad on Mount Desert Island, the Ba Harbor terminals have no physical connection with any railroad.

41. There is no contract between any water carrier and any rail road or railroads for interchange of traffic over Bar Harbor terminal by prorating.

42. (*c*) The roads of Bar Harbor are excellent, and all the wate terminals are connected with improved and adequate highways.

BANGOR HARBOR, ME.

43. (*a*) The city of Bangor, on the west side of the Penobscot River, lies in a northeasterly direction from Portland, Me., from which city it is distant 135 miles by rail and 145 miles by water. The head of navigation of the Penobscot is at Bangor and is defined by a highway bridge between Bangor and the city of Brewer, which lies on the east side. Less than 1 mile above the bridge there is a dam without a lock. Bangor is about 57 miles from the sea, or 27 miles from the head of Penobscot Bay. About one-fourth of a mile below the head of navigation on the Bangor side a tributary called Kenduskeag Stream enters the Penobscot. Navigation on this stream extends to a bridge about one-fourth of a mile above its mouth. The Penobscot and the Kenduskeag are closed to navigation about one-third of the year by ice. That part of the Penobscot River extending from the bridge downstream for about 3 miles, together with the navigable part of Kenduskeag Stream, constitute Bangor Harbor. The entire water front of Kenduskeag Stream, about one-half mile, lies in Bangor, but about 1½ miles of the Penobscot River water front on the west side lies in the town of Hampden, which joins Bangor on the south. On the east side, about 2¼ miles of water front lies in the city of Brewer, and about three-fourths mile lies in the town of Orrington, south of Brewer.

44. *Description.*—Of the Penobscot River water front on the west side about 1.4 miles is undeveloped and unused by water carriers. About 90 per cent of the development is in the city of Bangor. The entire water front of the navigable parts of Kenduskeag Stream is lined with wharves which have a street front as well as a river front. They are occupied for the most part by substantial buildings which are used by commercial concerns to whom the street is more important than the river front, so that a very small proportion of the wharves on the stream are used by water carriers. Only about 1 mile of the Penobscot water front on the east side is developed for

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

use by vessels. With one exception, all the development is in the city of Brewer.

45. The water front of Bangor Harbor is for the most part owned in comparatively small parcels by various unrelated parties. The only extensive owners are the Maine Central Railroad, which owns about 1 mile of the west shore of the main harbor, of which 0.4 mile is undeveloped, and the Eastern Manufacturing Co. that owns about a mile of undeveloped shore on the east side in addition to its wharves. The city of Bangor owns three street ends, one wharf, and one sewer location, all on Kenduskeag Stream. Penobscot County owns a ferry location on the Bangor and on the Brewer sides of the main harbor, and the city of Brewer owns a wharf on the east side.

46. The channel of the Penobscot River in Bangor Harbor, either naturally or by improvement, has a depth of 14 to 20 feet at mean low water. Fourteen feet at mean low water can be carried to the head of navigation. In general, the deep water, naturally and by development, lies on the Bangor side of the river. Kenduskeag Stream has been improved to the depth of 2 feet below mean low water. The mean range of tide at Bangor is 13.1 feet.

47. There are 37 wharves on the Penobscot River front of Bangor Harbor. Twenty-two are on the west side, 19 being in Bangor and 3 in Hampden. The east side has 15, of which 14 are in Brewer and 1 in Orrington. The shores of the navigable part of Kenduskeag Stream are divided into 22 parcels on the east side and 20 parcels on the west side, each of which, with 7 exceptions, is capable of use as a water terminal by small vessels. Only 11 out of the 42 parcels are at present used by vessels, but the whole front is capable of development for such use as water terminals.

48. All the wharves in Bangor Harbor are of the timber crib, stone-ballasted type of construction. On account of being river front and exposed at times to heavy currents and floating ice, they are built, as a rule, along the banks, instead of being piers projecting into the stream. In general, the wharves are not modern and are only in fair condition. A depth of at least 12 feet at mean low water is available at all the wharves on the Bangor side of the main harbor. Fourteen of these wharves have at least 14 feet and 5 have from 18 to 20 feet at mean low water. On the Brewer side 6 out of the 15 wharves are out at low tide, 7 have from 6 to 10 feet, and 2 have 16 feet at mean low water. In Kenduskeag Stream 17 out of the 42 berths are bare, and the rest have from 2 to 4 feet at mean low tide. Comparatively few of the wharves in Bangor Harbor have any mechanical freight-handling appliances. Of the 22 wharves on the Bangor side of the main harbor 10 have no accessories of any kind except sheds or storehouses. Six are fitted for discharging coal or fertilizer by means of buckets, shears, floating or stationary hoisters, and elevated runways, over which the cargo is wheeled to the sheds in barrows. Two coal wharves have mechanical diggers and automatic tramways for transferring cargoes, one having two towers operated by steam and the other one tower operated by electricity. Two wharves have conveyors, one for ice and one for lumber, and two have pipe lines for transferring oil from vessels to tanks. On

the Brewer side 9 wharves have no accessories except storage sheds. Four have shears and runways for discharging coal in buckets by floating or stationary steam hoists and wheeling to sheds in barrows. At one there are two marine railways, with power plants for hauling out vessels for repair. Two wharves have conveyors for handling ice to and from the storehouses. The wharves on Kenduskeag Stream have no mechanical freight-handling appliances and no accessories except storage sheds.

49. *Efficiency.*—Except the terminals for handling coal, lumber, ice, oil, and fertilizer, the general efficiency of the wharves in Bangor Harbor is low. Other freight is handled chiefly by manual labor. One wharf, that of the Eastern Steamship Corporation, is in excellent condition, and is efficient for its purpose. A considerable number of wharves are inefficient on account of lack of depth in the berth.

50. *Method of use.*—The wharves of Bangor Harbor are used by water carriers to discharge and receive passengers and freight, the latter being principally coal and lumber. The method employed is to lie alongside the wharf and transfer the freight by hand or by special appliances when available.

51. *Extent of use.*—About 585,170 short tons of various commodities, and probably 400,000 passengers, the latter including those carried by the ferry between Bangor and Brewer, are handled at the Bangor terminals annually. There is a line of sea-going steamers which run to Boston, and two lines of small steamers from Bangor to down-river points.

The freight is distributed as follows:

	Tons.
Main harbor:	
West side	449,160
East side	107,660
Kenduskeag stream	28,350
Total	585,170

On the west side the distribution is as follows:

	Tons.
Coal:	
At 1 wharf	224,000
At 5 wharves	124,840
At 6 wharves in Bangor	348,840
Oil at 2 wharves in Bangor	10,500
Fertilizer in Bangor	6,120
Cement and lime in Bangor	5,600
General merchandise at 3 wharves in Bangor	33,000
Lumber:	
In Bangor	100
At 2 wharves in Hampden	45,000
Total at 16 wharves	449,160

Six terminals on the west side handle no freight, four being idle.

On the east side, the distribution is as follows:

	Tons.
Lumber at 3 wharves	58,200
Coal at 3 wharves	36,960
General merchandise at 1 wharf	12,500
Total at 7 wharves in Brewer	107,660

One terminal handles no freight, and seven are idle, one of the latter being an ice terminal in Orrington.

In Kenduskeag stream, about 28,350 tons are handled per year, as follows:

	Tons.
Lime and cement	2,000
Sand and stone	3,200
Lumber	4,800
General merchandise	18,350
Total	28,350

This is handled at 11 out of the 42 parcels of water front, 31 wharf privileges on the stream not being used by vessels.

It will be seen that the water-borne freight in and out of Bangor is handled at comparatively few wharves, and that a considerable number of terminals do little or no business. Thus, while a large amount of freight is handled, the terminals as a whole are not used to a great extent compared with their capacity.

52. *Whether open to all water carriers.*—On the west side of the main harbor, the Maine Central Railroad has five wharves, all of which are open to all vessels on equal terms. One is suited for the transfer of freight between water and rail only, as it has no connection with highways. It has but 12 feet at mean low water and is little used except for tying up vessels. One wharf is arranged for the transfer of general merchandise between vessels and teams, and is used chiefly to handle local freight. It has no mechanical freight handling appliances. The other three Maine Central Railroad wharves are for handling coal. One has modern machinery capable of discharging 1,800 long tons per day. The other two have buckets, shears, and steam hoisters. The Maine Central Railroad has no modern schedule of charges for all commodities, but as far as could be ascertained their terms are as follows:

For wharfage, the Maine Central Railroad doing no work,

		Cents.
Long lumber	per M	10
Laths and shingles	do	2
Salt	per ton	8
Cement and lime	do	8
Stone	do	12

For discharging coal and loading it onto cars, the Maine Central Railroad doing all the work, the charge is 20 cents per long ton, but in such case there is no wharfage charge. For wharfage only, i. e., vessels lying at wharf, when not loading or unloading, charges are as follows:

Vessels of 300 tons or under, one-half cent per ton per day; for each ton over 300 tons one-fourth cent per ton per day. The ferry slip, owned by Penobscot County, is open to free public use except to the ferry company, which pays a small yearly rental for the privilege of landing its boats there. It is fit only for a small boat passenger landing. Two wharves privately owned are also open to public use. One has 12 to 18 feet at mean low water, but no accessories except storehouses. The wharfage terms are 10 cents per ton of freight. The other is fitted to discharge and store coal and transfer it to cars. It is idle at present, and special terms for its use would be made. The other 14 wharves on the west shore are open only to vessels doing

business with the occupants, except by special arrangements whic can readily be made. On the east or Brewer side of the main harbo the ferry slip, owned by Penobscot County, and the city wharf ar open to free public use. The marine railways are open to all for 1 cents per ton for hauling out, plus cost of repairs. There are fou idle wharves that are open to all on favorable terms, though n regular schedule is arranged. The other eight wharves are ope only to vessels doing business with the occupants, except by specia arrangement. In Kenduskeag stream three street ends and one cit wharf are open to use by all free of charge. One private wharf i open at 8 cents per ton wharfage, and one is open on no fixed terms but is not used. All the other wharf privileges available for use b vessels are open only to those doing business with the occupants.

53. (*b*) The Maine Central is the only railroad that has any physi cal connection with the water front of Bangor Harbor. Of the 2 terminals on the west side of the main harbor 14 have physical con nection with the railroad, which is true of only 2 out of 15 on th east side. In Kenduskeag stream, 3 out of the 42 shore privilege have railroad connections. The main line of the Maine Central Rail road is located along the west shore, and the Bucksport Branch o the Maine Central Railroad along the east shore of the main harbor. There is no marginal railway, connection with the wharves being made by spur tracks. The topography is such that it would be practicable to connect all the wharves on Bangor Harbor with the railroad, should occasion demand.

54. There is no contract between any of the water carriers operating upon Bangor Harbor, and any railroad or railroads, for interchange of traffic by prorating, except that the Eastern Steamship Corporation has a joint passenger schedule with the Maine Central Railroad and the Bangor & Aroostook Railroad, by which through tickets are issued between rail points and points reached by the steamship lines.

55. (*c*) With the exception of two wharves of the Maine Central Railroad, all the Bangor Harbor terminals are connected with adequate highways. In the case of those in the city of Bangor the highways are generally improved and in good condition. The highways of the other municipalities are generally earth roads.

STOCKTON HARBOR, ME.

56. (*a*) Stockton Harbor, Me., is the ocean terminal of the Bangor & Aroostook Railroad. It is near the head and on the westerly side of Penobscot Bay.

A freight terminal consisting of one bulkhead and two piers and a passenger terminal consisting of one pier are owned by the railroad company. These wharves are situated in a well-sheltered harbor, which has a considerable area, 20 feet or more in depth, and in which a channel 25 feet deep at mean low water has recently been dredged. The depths at the various berths vary from 9 to 25 feet at

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

mean low water. The freight terminal is provided with freight sheds for general merchandise and special storehouses for paper and potatoes. The potato house is fitted with a mechanical conveyor to transfer freight to the vessels. The passenger terminal has freight and baggage sheds and passenger rooms. The purpose of this wharf is to handle the passengers and freight of coastwise steamers.

Three privately owned wharves are located just outside and to the south of the harbor proper. One is a coal-handling plant, with two towers, coal pockets, and elevated tramway with automatic dump cars, all arranged to discharge coal or other bulk freights from vessels and transfer them to rail. The other two are accessories to fertilizer factories and are used for discharging the raw fertilizer materials from vessels. They are provided with conveyors that carry the materials from the vessel to the factories at the head of the wharves. At these wharves there is from 15 to 25 feet at mean low tide.

All these wharves, both the railroad wharves and those privately owned, are used chiefly for the transfer of freight between water carriers and the railroad. There is very little local business, and practically no freight is handled over the wharves that is not hauled for at least a short distance by rail.

57. With the exception of the passenger wharf, this terminal is used to a considerable extent, though not nearly to its capacity. The coal wharf is the one most extensively used. The annual traffic amounts to about 430,000 short tons. Of this about 240,000 short tons is incoming coal and about 100,000 short tons is outgoing paper. The wharves are all well built and in excellent condition, and their efficiency is high.

58. The railroad wharves and the coal wharf are all open to use by all water carriers on equal terms. The fertilizer wharves are suited only for the use of vessels doing business with the factories. Practically all freight tariffs between the railroad wharves and points on the Bangor & Aroostook Railroad include the wharfage charge. A few unimportant and seldom-used tariffs do not include wharfage charges, and on any traffic handled thereunder the Bangor & Aroostook Railroad Co., when getting a rail haul, imposes wharfage charges as follows, governed by official classification: For first three classes of freight, 1 cent per 100 pounds; for last three classes of freight, one-half cent per 100 pounds; on freight trans-shipped at Bangor & Aroostook terminals in Stockton Harbor from one vessel to another without giving the railroad a haul, double charges are applied.

The Bangor & Aroostook Railroad proposes eventually to make all freight tariffs include the wharfage.

For discharging coal at the coal wharf and transferring it to cars a charge of 20 cents per long ton is made.

As the fertilizer wharves are not open to public use no rates of wharfage are established.

59. (*b*) There is physical connection between all the wharves of this terminal and the Bangor & Aroostook Railroad.

There is a mutual contract between the Bangor & Aroostook Railroad Co. and the Bull Steamship Co., which runs between Stockton

(b) Physical connection between water terminals and railroads.

Harbor and New York City, for interchange of traffic by prorating. This applies only to potatoes that are billed from points on the Bangor & Aroostook lines to points south of New York City. There are no other such contracts for interchange of traffic over the Stockton Harbor terminals.

60. (*c*) The Bangor & Aroostook freight wharves and the coal wharf are not connected with highways. Such connection is not essential. The passenger wharf and the fertilizer wharves have highway connection.

BELFAST HARBOR, ME.

61. (*a*) *General location.*—The city of Belfast, Me., is situated very near the head of Penobscot Bay, on the west side. It lies northeast of Portland, Me., from which city it is distant about 131 miles by rail and about 112 miles by water. It is about 26 miles north of Rockland, Me., and about 28 miles from the open sea.

62. Belfast Harbor is part of a funnel-shaped cove called Belfast Bay. The axis of the funnel lies about northwest and southeasterly, the mouth being about 2 miles wide and opening toward the southeast into Penobscot Bay. The small end of the funnel is the mouth of the Passagassawakeag River. It is crossed by a bridge about 2 miles above the harbor mouth. The city of Belfast lies on both sides of the river and harbor, but the city proper, both residential and commercial, lies on the westerly side of the harbor below the bridge. The inner or terminal harbor extends southeasterly from the bridge about 1 mile. The water terminals all lie along the western shore of the harbor within a length of 4,000 feet, and, with one exception, all are below the bridge. The bridge is provided with a draw span for the passage of vessels. A second bridge crosses the river about 1½ miles farther upstream. The interval between the bridges is at present navigable, having a natural depth of 6 to 12 feet at mean low water, but being obstructed by a rock shoal about three-fourths of a mile below the upper bridge. This part of the river is suitable for the development of terminal facilities if required. A branch of the Maine Central Railroad runs along the western bank.

63. *Description.*—Belfast has a population of about 5,000. It is the terminus of a branch of the Maine Central Railroad and is on the line of the Eastern Steamship Corporation between Boston, Mass., and Bangor, Me. Four lines of small steamboats ply between Belfast and points in Penobscot Bay. It has a number of manufacturing industries, some of the products being shoes, leatherboard and shoe counters, clothing, pulley blocks and bushings, shoe and mill machinery, axes, boats, boxes, and lumber, and is the commercial center and shipping point for the surrounding agricultural territory and for some of the fishing and summer resort region of Penobscot Bay.

64. The outer harbor has a large anchorage area, varying from 18 to 30 feet in depth at mean low water. The channel of the inner harbor has been dredged to 15 feet at mean low water by the Federal

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(*a*) General location and description.
(*c*) Connection with highways.

Government, which has also dredged a small area on the eastern side of the harbor to 8 feet and a larger area on the western side to 13 feet at mean low water. Part of the channel of the inner harbor has a natural depth of 18 feet at mean low water. The mean range of tide is 9.7 feet. The harbor is well sheltered from ocean winds and seas.

65. The width of the inner harbor ranges from about 1,000 feet at the bridge to 2,500 feet at a point 1 mile below the bridge. There is about 1 mile of water front on each side of the inner harbor. The eastern side and about 1,000 feet of the western side are undeveloped commercially. There is plenty of room for expansion and no danger of monopoly.

66. At present there are 12 water terminals in Belfast Harbor, no two being owned by the same party. The Maine Central Railroad controls the largest piece of shore front, about 700 feet in length. With three exceptions, each wharf is occupied by the business of the owner. Two are let to various tenants, mercantile concerns and steamboat companies, and one is idle.

67. Five of the wharves are wooden platforms on pile foundations and one is to be rebuilt in this way. Three are wooden cribs filled with earth and stones, and three are combinations of the two types. Seven wharves are in good and three in fair condition. Two, one of which is to be rebuilt and extended, are in poor condition. There is a depth of 18 feet at mean low water at one wharf. Four have from 12 to 15 feet, three have 8 to 10 feet, and one has five feet at mean low water. Three terminals go dry at low tide, but one of these is to be extended to deep water.

68. One wharf has electric hoisting gear for handling fertilizer or similar bulk material, with an automatic tramway for conveying it to the shore. One has coal sheds, shears with power hoister, and machinery for conveying coal to the sheds. Four have coal sheds and general storehouses, with shears for hoisting, and elevated runways over which to wheel coal or similar bulk material to the bins. The other wharves have no special apparatus for transferring freight between vessels and the shore.

69. *Method of use by water carriers.*—The method of use is for the vessels to lie alongside the wharves to discharge and receive passengers and freight. At most of the wharves in Belfast Harbor, they lie afloat at all stages of the tide.

70. One wharf, just above the lower bridge, is part of a plant for manufacturing fertilizer, and is used for discharging the raw materials. The freight is shoveled into buckets, hoisted by electric power, and dumped into cars on an elevated trestle, by which it is automatically conveyed and dumped into storage bins. Two wharves are used in the fish business, one for the delivery of herring to a sardine factory, and one for delivery of mixed fish for packing and for shipment by rail. These wharves have no appliances for handling freight, except small hand derricks. Two general business wharves are let to various tenants dealing in coal, hay, grain, flour, fertilizer, salt, and other general merchandise, and are used by vessels to handle freight to and from the tenants. Two wharves are occupied by fuel concerns, one of which deals in hay, and are used by vessels to handle these commodities between water and land. Two are used for the discharge and receipt of lumber. One of these is

to be rebuilt with the idea of receiving lumber by vessel from the Pacific coast after the opening of the Panama Canal. One terminal, formerly a shipyard, is used by a ship-owning concern for storage and repair of vessels. It also has a landing place for small boats. The Maine Central Railroad wharf is fitted for handling coal, but at present is not used for any purpose. All coal and similar bulk freight is discharged by shoveling into buckets and hoisting by power. One wharf has machinery for conveying it to bins, but on the others it is wheeled by hand. One wharf is used exclusively by coastwise and bay steamers as a passenger and freight terminal, and two others, one of the fish wharves and one of the general business wharves, are used by other lines of bay steamers. The coastwise steamboat wharf has freight sheds and passenger rooms, and one of the others has freight sheds only. There are no special freight handling appliances at any of the steamboat wharves.

71. *Extent of use by water carriers.*—The water terminals of Belfast Harbor are all used to a small extent compared to their capacity. Compared to other similar places in the State, they are used to a considerable extent, there being but two idle terminals. Each of the rest has a small but regular traffic over it.

72. The total annual volume of traffic over the wharves at Belfast Harbor is estimated to be about 87,200 short tons of freight and 37,000 passengers. This tonnage is divided as follows:

	Short tons.
Fertilizer	28,000
Coal	15,700
Building materials	5,750
Fish	3,000
General merchandise	34,750
	87,200

Of the fertilizer, 25,000 tons is handled at one wharf. Coal is handled at three wharves, the largest amount at one wharf being 6,700 tons. Building materials are handled at two wharves, and fish at two wharves. About 16,250 tons of general merchandise is handled at the steamboat wharf, the rest being distributed over four others.

73. *General efficiency.*—Considering the amount of traffic over them, the wharves of Belfast, with three exceptions, may be considered as of fair efficiency. Three are at present in poor condition, and have little or no water at low tide, and are of low efficiency. It is planned to extend and improve two of these wharves. The fertilizer wharf, two fish wharves, one general business wharf, and the railroad and steamboat wharves are highly efficient on account of deep water or special equipment.

74. *Whether open to all water carriers.*—Seven terminals are private and open to use only by vessels doing business with the owners. The two general business wharves are open at the option of the tenants, each of whom can sublet his space if desired. Two fuel wharves and one fish wharf are open to use by all vessels on equal terms.

75. *Terms and conditions of use.*—But little information could be obtained in regard to terms and conditions of use. No regular schedule is in use. At one general business wharf wharfage of 10 cents per M. feet b. m. is charged on lumber, and at one coal wharf 6 cents per ton wharfage is charged. These charges are for the privilege of

using the wharves and do not include cost of handling. At the other open wharves special terms are made to suit the circumstances.

76. (*b*) The Maine Central Railroad enters Belfast along the west shore of the river and harbor. A spur track extends along the greater part of the developed water front. Ten of the 12 terminals have railroad connection across the shore ends of the wharves, but no wharf has a track running alongside the dock so that transfer can be made directly between water and rail carriers. Two terminals, the coastwise steamboat wharf and the shipyard, have no railroad connection. The topography of the shore of the river and harbor is such that it would be practicable to provide a marginal railroad the entire length of both shores if needed.

77. *Prorating.*—There is no contract between any of the water carriers operating upon Belfast Harbor, and any railroad or railroads for the interchange of traffic at Belfast Harbor by prorating.

78. (*c*) A marginal highway extends along the commercially developed water front. It is not highly improved, but is adequate for the service required of it. All the wharves, except the railroad wharf, have connection with this highway. The connecting links are not highly improved, but are adequate for the present traffic. The railroad wharf has no connection with any highway, such connection not being essential to its usefulness.

CAMDEN HARBOR, ME.

79. (*a*) *General location.*—The town of Camden is located on the west shore of Penobscot Bay. Camden village and harbor are about 8 miles north of Rockland, Me. Camden Harbor, which is formed by a cove in the western shore of Penobscot Bay, is, roughly, about three-fourths of a mile square, one side being open to the southeast, forming the harbor entrance. A point of land called Eaton Point projects into the harbor from the northwest side, dividing the northwesterly part of the harbor into two coves. The easterly cove is undeveloped commercially, the water terminals being all located on the westerly cove, which forms a sort of inner harbor.

80. *Description.*—The bottom of the harbor below low-water line was naturally gently sloping, so that there was a considerable area of flats and shoal water near the shores. The outer harbor, however, affords an anchorage ground about one-fourth of a square mile in area, with depths from 12 to 30 feet at mean low water. The Federal Government has improved Camden Harbor as follows: An area off the end of Eaton Point has been dredged to 14 feet at mean low water. The whole area of the inner harbor, which was naturally very shoal, has been dredged to the depth of 10 feet at mean low water. The mean range of tide is 9.6 feet. The outer harbor is slightly exposed to the ocean wind and swell from the southeast, but the inner harbor is sheltered at all times.

81. Camden is not served by any steam railroad, but is the terminus of a local electric street railway, which carries passengers and freight and has direct connection at Rockland with the Maine Central Rail-

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(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.

road, with which it interchanges traffic. It is also served by a line of coastwise steamships plying between Boston, Mass., and Bangor, Me. A local line of small steamboats plying between Penobscot Bay points also touches at Camden.

82. Camden is a manufacturing community of some importance. It has foundries which produce gas engines, pumps, and blocks, a cigar factory, six or more textile factories, eight concerns that build boats and yachts, and one shipyard. It is also the market or commercial center of the prosperous agricultural, fishing, and summer-resort region in its vicinity on the mainland and in Penobscot Bay. An important part of the industry of Camden is the construction and repair of the numerous pleasure boats of this region and their storage during the winter season. The bay and river steamers of the Eastern Steamship Corporation are largely repaired and wintered here, and considerable repairing of commercial sailing vessels is done. Large vessels have been built at the shipyard, but this business is now practically discontinued.

83. The shores of the inner harbor and part of Eaton Point, comprising about 4,000 feet of water front, are occupied by water terminals. The shores of the outer harbor and the east cove, about 1 mile, are undeveloped as to water terminal facilities. There are at present 14 water terminal establishments in the inner harbor. Nine of these are for the construction, maintenance, and repair of vessels, and include establishments for building and repairing wooden pleasure and commercial vessels, driven by sails, steam, or gas motors, of any size, from a 2,400-ton six-masted schooner to a rowboat; for building and repairing marine gas engines; for storage, hauling out, and care of commercial and pleasure vessels; and for landing places for pleasure vessels. These nine terminals occupy about three-fourths of the entire developed water front of the harbor. One of them occupies the entire eastern side of the inner harbor, about 1,800 feet of shore. Four are general business terminals and occupy about 650 feet of shore. One of these four is also a landing place for bay steamers. One is purely a steamship passenger and freight terminal, and occupies about 300 feet of shore. The commercial water front of Camden is fully occupied and the undeveloped shore is held largely by summer residents, so that extensive expansion of the water terminals would probably be expensive. There is no public wharf or water front.

84. The wharves of Camden are of various types, including solid fill faced with timber cribs or walls of stone or cement concrete, wooden platforms on piles, or combination of these various kinds of structures. With one exception they are in good condition. One terminal has a depth of 14 feet, nine have 10 feet, one has 7 feet, and three have from 0 to 2 feet at mean low water.

85. Three terminals have derricks (one with power) for transferring heavy articles between water and land. Three (one of which is private) have marine railways for hauling out, repairing, and storing vessels. Five have sheds or other storage room for coal, sand, or similar bulk commodities, with elevated stages for wheeling from the vessel to the storage pile. Two have float stages for small boat landings. There are no mechanical appliances except derricks for handling freight.

86. *Method of use.*—The most extensive use made of Camden Harbor terminals by water carriers is the construction, repair, and storage of vessels, both commercial and pleasure craft, the latter being probably more numerous. Large vessels are stored for the winter, floating alongside the wharves or quay walls. Smaller ones are hauled out by the railways and stored on shore. There are three public terminals for this class of service, one of which is idle. Three terminals are private and are used for landing and winter quarters of the owners of yachts. One extensive wharf, which is owned by the local yacht club, has a clubhouse and float, and is used in summer as a landing place for yachts. At one terminal there is an extensive plant for manufacturing anchors, gasoline marine engines, and motor boats. Most of the engines are shipped away, but some are installed at the wharf. One small wharf formerly used for boat building, repair, and storage is now idle.

87. The four general business terminals are used by vessels to discharge and receive the coarser kinds of general merchandise, such as coal, hay, grain, flour, salt, and building materials. The method is to lie alongside the wharf and transfer directly between vessels and shore. Coal and similar commodities are shoveled into buckets and hoisted to stages generally by steam power, sometimes furnished by the vessel and sometimes by a floating hoister, and wheeled in barrows to storage piles. Barrels and other heavy packages are hoisted in slings. Lumber and light packages are moved by hand. One of these four wharves is used as a passenger and freight terminal by bay steamers.

88. One wharf is the passenger and freight terminal for steamers plying between Boston and Bangor. Freight is transferred between vessel and wharf by hand trucks.

89. *Extent of use.*—The number of vessels and tonnage handled by the seven active terminals for construction and repair could not be learned, but it is large. The public establishments are worked to capacity during the summer season, and in the winter, all available storage space is used. The larger of the marine railways is the only one in Maine that is not closed by ice in severe winters.

90. The freight handling terminals are used only to a moderate extent in comparison to their capacity. The total estimated annual traffic is 50,000 passengers and 53,750 short tons of freight. The largest item is coal, about 18,200 tons, handled at four wharves. The largest amount of coal handled at one wharf is about 8,000 tons. Building material amounts to about 17,490 tons, handled at seven wharves. The rest is made up of foodstuffs, oil, wood, iron and machinery, wool and woolen goods, and other general merchandise. About 7,540 tons of this general traffic is handled at the steamboat wharf.

91. *General efficiency.*—With the exception of one small and unimportant landing for boat building and storage the water terminals of Camden Harbor are in good condition. Those for the construction and maintenance of vessels are generally of high efficiency. The volume of traffic over the freight and passenger wharves is so small that expensive apparatus for handling freight would not be warranted, and these wharves may be called fairly efficient under present conditions.

92. *Whether open to use by all water carriers.*—The services of four terminals for vessel construction and maintenance are open to all on equal terms. The yacht club wharf is free as a landing place to all pleasure craft. Three are private and open only to the vessels of the owners. One is in poor condition, has no water at low tide, and is out of use. The five general business and steamboat terminals are open to use by all vessels on equal terms, when such use does not interfere with the business of the occupants.

93. *Terms and conditions of use.*—The terms for the services of vessel construction and maintenance are subject to special agreement in each case. At two general business wharves the wharfage charge is $0.05 per ton of freight. Use of the other wharves is subject to special agreement.

94. (*b*) There is no physical connection between any of the water terminals in Camden Harbor and any railroad.

95. *Prorating.*—There is no agreement between any water carriers operating on Camden Harbor and any railroad or railroads for the interchange of traffic at Camden Harbor by prorating.

96. (*c*) Camden Harbor is bordered by an improved and adequate highway. Except one small and unused boat building and storage terminal, all the wharves have good connection with the marginal highway.

ROCKPORT HARBOR, ME.

97. (*a*) *General location.*—The town of Rockport, Me., is located on the west side of Penobscot Bay, north of the city of Rockland. Rockport village and harbor are about 6 miles north of Rockland. Rockport Harbor is a triangular-shaped cove about 1½ miles deep in the west side of Penobscot Bay. The long axis of the triangle lies about north and south, and the harbor is landlocked on the east and west sides. The south side of the triangle is about three-fourths of a mile long and is open, forming the entrance to the harbor. It is exposed to the winds and sea of the open ocean from the southeast, so that at times a heavy swell enters the harbor. The water terminals lie at the northern point of the triangle, which is somewhat sheltered from the swell so as to form an inner harbor. The shores of the outer harbor are bold and the water ranges from 60 to 30 feet deep at mean low tide up to the mouth of the inner harbor. The inner harbor was shallow, but has been dredged by the Federal Government so that 12 feet at mean low water can be carried to the wharves. A contract is now in force for removing a ledge at the mouth of the inner harbor to the depth of 15 feet at mean low water and work is in progress. The mean range of tide is 9.6 feet.

98. *Description.*—Rockport village and harbor are not served by any steam railroad or any regular lines of water passenger or freight carriers. It is served by a local electric street railway, which carries passengers and freight and interchanges traffic at Rockland with the Maine Central Railroad, with which it has direct connection. Steam railroad cars are not, however, hauled over the electric railway lines, but freight is transferred to and from the electric railway freight and

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

express cars. The electric railway has a few joint freight rates with the Maine Central Railroad, but in general freight for Rockport is rebilled at Rockland via the electric railway. Express matter is billed through to Rockport.

99. The village of Rockport practically owes its existence to the lime industry, shipbuilding, and the ice business. There has been some fish-packing business, but it is no longer carried on. There are excellent limestone quarries within 1 mile of Rockport, from which stone is brought and burned in kilns on the harbor front. The kilns of one concern are provided with spur tracks at the level of the tops of the kilns so that stone is brought to them by the electric railway. There is also an excellent ice pond within one-half mile of the harbor, from which ice can be very cheaply transported to water front. The shipbuilding business is no longer carried on, though some small schooners, principally in the lime-carrying business, are still owned at Rockport. At present practically the only industries requiring water transportation are the lime and ice business and some general trading to Penobscot Bay points.

100. There are at present 10 wharves or water terminals in Rockport Harbor. Four are owned and occupied by lime concerns, four by concerns handling lumber, coal, grain, general merchandise, and ice, one by a shipbuilder, and one is unused. Five wharves are solid fill with granite face walls, one is a wooden platform on piles, one is a combination of the two types, and the other three are earth and rock filled cribs, with pile extensions. The stone wharves are in good and the others in fair condition. The ice wharf has a depth of 11 to 15 feet at mean low water. Two lime terminals have 12 feet and one coal, lumber, and general merchandise wharf has 6 feet at mean low water. The other six are bare at low tide. The maximum depth at these wharves is limited by the rise of tide. The ice wharf has two loading stages, with mechanical conveyors for ice. The other wharves have sheds and storehouses, but no mechanical appliances for handling freight.

101. *Extent of use.*—One ice and three lime terminals are used to a considerable extent. Three coal, lumber, and general merchandise wharves are used to a small extent, and the remaining three are idle. Considered as a whole and in comparison with their capacity, the Rockport Harbor terminals are used to a very small extent.

102. The annual water-borne traffic handled over the wharves at Rockport is estimated to be about 87,000 short tons. About 66,000 short tons of this, most of which is incidental to the lime industry and is handled at the lime wharves, is about as follows:

	Short tons.
Lime	36,000
Wood	16,000
Coal	9,000
Lumber and cooperage	5,000
Total	66,000

Ice amounts to about 18,000 short tons per year, and general merchandise, including bricks, sand, stone, hay, grain, flour, fish, and fertilizer, to about 3,000 short tons.

103. *Method of use.*—The method of use by water carriers is to lie alongside the wharves and discharge or receive cargoes. Ice is transferred to the vessel by mechanical conveyors. Coal is hoisted by the vessel's gear and wheeled to sheds in barrows. Lime is wheeled to the vessels on hand trucks and transferred by the ship's gear. Steel barges, which are largely used, are provided with derricks and steam power. Other commodities are transferred by hand and the vessel's gear. The three deep-water wharves are accessible to vessels that use them at all stages of tides. The others can be approached and left only at high tide.

104. *General efficiency.*—On account of their durable type of construction the Rockport Harbor terminals are, as a rule, in good condition. The small amount of traffic over them would probably not justify any further installation of mechanical freight-handling appliances and they may be considered fairly efficient to meet the present demands.

105. *Whether open to use by all water carriers.*—The terminals are all open to use by all vessels on equal terms when such use will not interfere with the business of the occupants.

106. *Terms and conditions of use.*—No stated schedule of terms and conditions of use are arranged for any of the wharves. Special arrangements are made in each case.

107. (*b*) No physical connection exists between the water terminals of Rockport Harbor and any railroad or railroads.

108. *Prorating.*—No contract for interchange of traffic by prorating exists between any water carriers operating upon Rockport Harbor and any railroad entering Rockport.

109. (*c*) Rockport inner harbor is bordered by a marginal highway, which is in good condition, but which is generally at a considerable elevation above the wharves. All the wharves but one have connection with this highway, but in each case the connecting road is poor, because it is very steep and rough. The highway connections are, however, adequate to the present demands.

ROCKLAND HARBOR, ME.

110. (*a*) Rockland Harbor, Me., is situated on the seacoast at the western entrance to Penobscot Bay, about 86 miles, a little north of east from Portland.

111. *Description.*—Rockland is the terminus of a branch of the Maine Central Railroad, and is the transfer point for passengers and freight destined to or originating in the lower part of Penobscot Bay. This bay contains a considerable number of large islands which, together with both shores of the southern part of the bay, are without railroad service, and depend almost entirely upon lines of steamboats running to Rockland, where connection is made with the railroad and with coastwise steamboat lines to Portland and Boston. This territory is the seat of the larger part of the granite industry of Maine, produces large quantities of fish and lobsters, and has a

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

large and growing summer-resort business. Lime is produced in Rockland in large quantities, and shipped by both water and rail. Thus Rockland is an important local commercial and transportation center, but is not a point for extensive interchange of through traffic between water and rail.

112. Rockland Harbor is formed by a deep cove in the western shore of West Penobscot Bay near the open sea. The entrance to the harbor faces toward the east. It was naturally very broad and exposed to a long rake of wind and sea across Penobscot Bay, so that in some storms the anchorage was unsafe and it was dangerous for vessels to approach or lie at the wharves. A breakwater has been built about halfway across the mouth of the harbor from the north by the United States, which effectually shelters the wharves and anchorage grounds.

113. The harbor has a naturally good anchorage ground. A considerable area is 30 feet or more deep at mean low water. About 1.13 square miles is 18 feet or more deep and about 1.50 square miles is 12 feet or more deep at mean low water, and about 2.34 square miles lies below the low-water line. The mean range of tide is 9.7 feet. The greater part of the shores of the harbor below high-water line were naturally gently sloping with broad areas of tidal flats. The development of the water front to afford terminal and transfer facilities for water carriers has been made only on the western shore of the harbor, opposite the entrance. About 2.84 miles of shore has been built up with wharves and appertaining structures. North and south of the wharves there remains about 2 miles of available undeveloped shore.

114. Two points of land project into the harbor from the westerly shore, affording locations where depth of 14 feet at mean low water can be reached with reasonable lengths of wharf. It is on these points that what may be termed the general transportation terminals for freight and passengers have developed. On the southern point (called Atlantic Point) is the through railroad terminal for the transfer of freight and passengers between water and rail carriers. On the northern point (called Crocketts Point) is the wharf used as a terminal by the coastwise steamship lines and some local lines of small boats.

115. Of the 15,000 feet of water front now developed, about 7,500 feet was originally improved incidentally to the lime industry. Kilns and other plant for manufacturing lime were built along the shore, and wharves were built to facilitate the shipment of lime and receipt of kiln wood and other supplies by water. Of this 7,500 feet frontage 3,500 feet is now idle and 500 feet has been converted to other uses. There were formerly about 32 separate plants for burning and shipping lime. About 20 of these plants are now consolidated under one ownership, of which 13 are in active use. Sixteen lime plants, including 7 belonging to the consolidation, are now idle, and 3 have been converted to other uses. At the north end about 6 of the original plants are now operated as one unit, and the same is true of about 4 of the original plants on Crocketts Point. At these points the wharves have been extended and enlarged by granite walls and solid fill.

116. There are now 35 wharves or water terminals in Rockland Harbor. The largest single owner is the Rockland-Rockport Lime Co., which holds 10 terminals with an aggregate length of about 5,500 feet of shore front. The other 25 terminals are all comparatively small and are separately owned, which, taken with the unimproved water front, leads to the conclusion that there is no danger of monopoly of terminal rights in Rockland Harbor.

117. Practically all the wharves in this harbor are timber cribs filled with stone or earth or are solid fills faced with granite walls, or combinations of the two types. In some cases additions have been built of wooden platforms on pile foundations. Except on the two points, few, if any, of the wharves were originally built beyond low-water line. As the mean rise and fall of tide at Rockland is 9.7 feet, the small vessels formerly used in the lime business could reach and leave the wharves at high tide. At present 16 out of 35 wharves have no water, and 11 have but 6 feet or less at mean low tide. This of course necessitates considerable waste of time waiting for the tide, a condition which was formerly considered satisfactory, but is now a serious handicap. Eight terminals have from 9 to 14 feet at mean low water. These last include the lime terminal at the north end. which the owners have recently dredged to 12 feet, and the wharves on the point where deep water is naturally near the shore.

118. The principal water terminal of the lime company has recently been improved by building granite face walls and filling solid behind them, and dredging to 12 feet deep at mean low tide. A coal-handling plant was in process of construction at this terminal in November, 1912. It is to include coal pockets with a storage capacity of 10,000 tons, and one coal-handling tower with a capacity of 1,000 tons per day. This plant will have improved railway connections, and all the coal used by the company will be received here and distributed by rail to its various quarries and kilns. Lime shipped by water is mostly handled in the company's barges, which are fitted with steam-power derricks for transferring cargo.

119. One wharf, used for shipping granite, has a steam-power derrick for transferring heavy pieces between water and rail carriers. No other wharves are fitted with modern freight-handling appliances. Coal is shoveled into buckets, hoisted by steam power, and wheeled in barrows on elevated runways to sheds or cars. On the fish wharves are some small hand derricks, but most package freight is moved by hand on trucks.

120. Besides the breakwater built in Rockland Harbor by the Federal Government, several ledges in the anchorage ground have been removed and areas have been dredged as follows (at mean low water), viz:

	Feet.
At the north end	6
At North Cove	4
At Crocketts Point	13
At south side of Crocketts Point	6

121. *Method of use.*—The water terminals, or wharves, of Rockland are used by water carriers for discharging and receiving freight and passengers and for the transfer of freight and passengers between water and rail routes. In general, the method is for vessels

to be placed alongside the wharves at high tide, and to handle their cargoes directly between vessels and wharves. Practically all commodities, except coal, lime, and granite, are transferred by hand, some hoisting being done with the ship's tackle by horsepower.

122. Five terminals are used by vessels to receive lime and to discharge coal, wood, cooperage, and other materials used in the lime business. This traffic is carried on largely by the fleet owned by the Rockland-Rockport Lime Co., which includes 5 schooners, 7 steel barges, and 1 towboat. The barges can each carry 16,000 barrels of lime or 1,600 tons of coal.

123. Nine terminals are used to handle coal, wood, lumber, oil, fish, stone, sand, bricks, and general merchandise. Practically all the commodities are handled on all the nine wharves, except that several do not handle coal, and one is used exclusively for fish and oil. Two are transportation-company wharves, one being owned by the Maine Central Railroad and one being leased by the Eastern Steamship Corporation and several smaller steamboat lines. The railroad wharf is used by steamers of the railroad company, which run to practically all points in Penobscot Bay, including, in the winter, Mount Desert. Also it is used by vessels in general that transfer freight in carload lots between water and rail. The steamboat terminal is used largely for passengers and freight destined to Rockland and vicinity, and for points in the bay via the smaller boats. A large quantity of fish is handled by three concerns on this wharf. These two wharves, together with Atlantic Wharf, which is the principal coal and oil terminal, the principal fish wharf, and the Thorndike & Hix Wharf have 9 to 14 feet of water at mean low water, and are accessible at all tides to most of the vessels using them. Others are generally accessible only at and near high tide. One wharf is used to handle granite and other heavy freight from water to rail, and has about 10 feet at mean low water. Two terminals are used for building and repair of wooden vessels, and have from 0 to 12 feet at mean low water. One is a public wharf, and is used mostly for storage by the city. Fifteen of the present 35 terminals are now idle, 13 of them being plants for the manufacture and shipment of lime.

124. *Extent of use by water carriers.*—As a whole and in comparison with their capacity, the water terminals of Rockland Harbor are used to a small extent. The total water-borne traffic amounts to about 303,035 short tons of freight and 100,250 passengers. At the shipbuilding terminals, vessels to the extent of 31,500 tons are handled annually. About 85,000 passengers are handled at the steamboat and 15,250 at the railroad terminal. The various commodities may be classified as follows:

	Short tons.
Coal	88,100
Lime	84,000
Brick, sand, and stone	37,065
General merchandise	63,120
Lumber, cooperage, and wood	11,355
Oil	12,020
Fish	4,675
Cement	2,700
Total	303,035

125. The receipts and shipments of the lime industry amount to about 133,000 short tons, and are the largest of any one interest. This tonnage is made up as follows:

	Short tons.
Lime	84,000
Coal	42,000
Wood	2,200
Lumber and cooperage	4,200
Cement	600
Total	133,000

The lime company receives about half the coal brought to Rockland by water. The rest is handled by five concerns in amounts ranging from about 5,600 to 14,500 tons per annum, there being no large receipts of coal for reshipment by rail. About 30,000 tons of the brick sand, and stone is granite, handled at the wharf of the Rockland Granite Co., the remaining tonnage being in small quantities at 6 wharves. Of the general merchandise, about 50,600 tons is handled at the steamboat wharf and about 8,500 tons at the railroad terminal, the remainder being handled in small lots at several different wharves. Lumber is handled in small quantities at several wharves besides the lime terminals. Oil is handled at 2 principal wharves, the present proportion being 11,200 tons at one and about 820 tons at the other. Fish is handled at 4 wharves, about half the traffic being over one of them. About half the cement is handled over one wharf, the remainder being distributed over three. Of the vessel tonnage, about 25,000 tons of it is repairs handled at one terminal.

126. *General efficiency.*—The greater part of the Rockland Harbor terminals being built in a substantial manner, many of them being solid fill, faced with stone walls, are in a good state of preservation. Twenty-six out of the thirty-five have little or no water at low tide, and so are suitable only for high-water navigation, and therefore are of low efficiency. Nine terminals have sufficient water to accommodate at low tide most of the vessels that use them. Of these, the north end lime terminal, with its new coal-handling plant; the two shipbuilding terminals, the two transportation terminals, two fish wharves. and the granite wharf may be considered to be highly efficient. The coal and lumber terminals handle such small tonnages that mechanical freight-handling appliances would probably not be justified, and they may be called fairly efficient. On the whole, considering that only one terminal in the harbor has mechanical freight-handling machinery, and that many wharves are idle and have insufficient water, the general efficiency must be called low.

127. *Whether open to use by all water carriers.*—One wharf owner stated that by provision of local law all wharves in Rockland Harbor are open to use by all vessels. Further inquiry failed to confirm this statement. From statements of other wharf owners and occupants, 16 are called private and 1 open to use only by vessels doing business with the occupants. Nineteen wharves are open to all vessels on equal terms, but of these 11 are idle, either on account of poor condition and efficiency or lack of demand.

128. *Terms and conditions of use.*—In general, the use of open wharves by vessels is not made under a regular schedule, but is subject to a special arrangement in each case. It is the custom at the open wharves to allow small vessels to use them without charge for the

sake of the business done by the vessels with the occupants of the wharf. At the steamboat terminal the steamboat companies and other occupants pay rent to the wharf owners. The use of the railroad wharf is free to vessels interchanging traffic with the railroad. At one wharf only a statement as to wharfage charges was made, as follows:

Barrels and boxes	each	$0.01
Stone, sand, coal, etc	per ton	.10
Bricks	per M	.10
Lumber	per M., b. m	.10

129. (*b*) Rockland is served by two railroads, the Maine Central Railroad and the Lime Rock Railroad. The latter is strictly local and was built for the purpose of transporting limestone and other materials between the quarries and the kilns. It is, however, a regularly chartered road and has connection with the Maine Central, and is under the same obligations to the public as any other public carrier.

130. The two roads together form a sort of belt line around the most populous part of the city of Rockland, which, however, is not quite inclosed, there being a short space along the water front that has no marginal railroad. The back part of the loop is at the quarries which lie about 2 miles west of the water front. From the quarries one branch circles north around the city and reaches the wharves at the north end, and another branch circles south, connects with the Maine Central, reaches the wharves at the south end and extends north along the shore for about half the length of the improved water front. About one-third the improved water front has no marginal railroad.

131. Thirteen wharves have physical connection with the railroad. Five of these belong to the Rockland-Rockport Lime Co., one being let to a grain dealer and arranged to transfer grain from rail to water. At the north end the lime company terminal is the only one with railroad connections. The road passes along by the shore ends of several wharves, and could be practicably extended to serve the entire water front if needed.

132. At the south end, including Crocketts Point, there are 23 terminals, all on the line of the marginal railway. Of these wharves 12 have physical connection with the railway and 11 have not, but can practicably be connected if circumstances warrant.

133. The steamboat terminal (Tillson's wharf) is reached by a spur track at its upper end, but not at the outer end, where the freight sheds are located. McLoon's wharf (fish and oil) and Atlantic wharf (coal and oil) each has spur tracks and pipe lines by which oil is transferred from vessels to storage tanks. The latter wharf is specially suited for transfer between water and rail, having a track alongside the dock, and a derrick. The two shipbuilding terminals and the granite wharf have railroads and derricks and are fitted to transfer heavy freight. The railroad terminal has tracks alongside the dock, with shears, steam hoist, runways, coal sheds, and freight sheds. It is used by the railroad for transfer of passengers, baggage, and freight traffic between rail and the company's boats. Also

(*b*) Physical connection between water terminals and railroads.

it is the most largely used of any wharf in the harbor, by water carriers in general, for transfer of freight, such as grain, pulp wood, lime rock, and oil (to United States torpedo boats), between water and rail.

134. *Prorating.*—There is no contract between any independent water carriers operating upon Rockland Harbor and any of the railroads entering Rockland for interchange of traffic by prorating. The Maine Central Railroad operates boats between its terminal in Rockland Harbor and the principal points in Penobscot Bay. Passengers, baggage, and certain kinds of freight (i. e., package freight and articles that can be handled by hand) are ticketed and billed through via these boats between railroad points and points reached by the boats.

135. (*c*) The water front of Rockland is bordered by a marginal highway, a considerable proportion of which is paved, and which is in generally good condition. All the terminals are connected with the marginal highway, but in a considerable number of cases, notably the idle lime wharves, the immediate approaches to wharves are steep and rough. In some of these cases, on account of the poor condition of the wharves, they are accessible to teams only at the shore ends. The wharves in most active use, notably the steamboat and railroad terminals, the coal, fish, and active lime plants, have good connection with adequate highways.

MATINICUS HARBOR, ME.

136. (*a*) *Location.*—Matinicus Harbor is on the easterly side of Matinicus Island, which is the largest of a group of islands off the mouth of Penobscot Bay, about 20 miles from Rockland, Me.

137. *Description.*—The harbor is a cove about 20 acres in area, that is naturally partly inclosed and sheltered on all sides except the northeast by a small island and several ledges. The northerly part of the harbor has been made secure from northeast storms by a breakwater recently built by the Federal Government. The depth of water available for anchorage varies from about 7 feet at mean low water in the most sheltered part to about 25 feet at mean low water in the part of the harbor still exposed to northeast storms. The mean range of tide is 9 feet. The water terminals are all in the northern part of the harbor. There is but one wharf of importance. It is built of stone, with wooden fenders, and has a depth of about 4 feet at mean low water at its outer end. There are several other landing places, available only for use by small boats at and near high tide. There are no mechanical freight-handling appliances. The inhabitants of Matinicus are about 180 in number, and their principal industry is fishing.

138. *Method of use by water carriers.*—There are 50 fishing boats belonging to this place that use the harbor daily as a home port. For about five months in the year a fleet of about 30 larger boats and vessels uses the harbor daily for anchorage and shelter. During the summer season yachts call for shelter and anchorage. A steam-

(*a*) General location and description.
(*c*) Connection with highways.

boat line makes three round trips per week between Matinicus Island and Rockland.

139. *Extent of use.*—The annual freight traffic amounts to about 3,000 short tons, of which about 1,600 short tons are fish. The next largest items are salt, oil, coal, and wood. The annual number of passengers is about 3,000, and the arrivals and departures of vessels as follows:

Coastwise, average draft 9 feet:	
Steamers	400
Sailing	5,400

140. *General efficiency.*—The terminal facilities although very simple are adequate to efficiently accommodate the existing traffic.

141. *Whether open to use by all vessels.*—The principal wharf is owned by concerns that conduct mercantile and manufacturing establishments on the island, and whose business is, to a large extent, with the boats and vessels that frequent the harbor. Positive information could not be obtained, but it is probable that the terminal facilities are open to use by all vessels free of charge.

142. (*b*) There is no railroad on Matinicus Island, and no contract between any water carrier and any railroad or railroads for interchange of traffic at Matinicus by prorating.

143. (*c*) Matinicus Island is but 2 miles long and about 1 mile average width, and consequently its highways are primitive, but such as exist are connected with the wharves and are adequate for the present traffic.

SOUTH BRISTOL HARBOR, ME.

144. (*a*) *Location.*—South Bristol is part of the town of Bristol, on the east side of the Damariscotta River, Me. It lies northeast of Portland, Me., from which it is distant about 52 miles by water. The southwestern part of Bristol, next to the Damariscotta River, consists of a long narrow neck of land, with an island at the southerly end of it, separated from the neck by a narrow navigable strait, which is crossed by a highway drawbridge. The village of South Bristol is situated in the vicinity of the bridge, on both sides of the strait. It is about 3 miles above the mouth of the river. The name, South Bristol Harbor, has been given to the strait and its immediate approaches on both east and west sides. In practice it is rather a thoroughfare, affording a short cut between Damariscotta River and Johns Bay, than it is a harbor. There are however, three wharves, one north of the strait on the east side, and two south of the strait, one each on the east and west sides. There is, in addition, a small-boat landing on the west side, south of the strait.

145. *Description.*—The wharves are wooden platforms on pile foundations. Two of them are provided with float stages for small-boat landings. There are also one establishment for building, hauling out, and repairing vessels and two concerns for building and repairing boats and yachts. The wharf on the southwest side, known as the steamboat landing, has 7 feet at mean low water. Another wharf

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.

on the northeast side, also used as a steamboat landing and for general purposes, has 7 or more feet at mean low water. The other two wharves, one on the east and one on the west side, south of the bridge, used principally as small-boat landings, have about 4 feet at mean low water. The mean range of tide is 9.1 feet. There are no mechanical appliances for handling freight, and no other accessories except a freight storehouse on the steamboat wharf. All the wharves are in good condition.

146. *Method of use by vessels.*—South Bristol is 17 miles from the nearest railway station, at Damariscotta, on the Maine Central Railroad. This distance, over roads that are generally poor, makes wagon haul prohibitive, so that the locality depends entirely upon water carriers for freight and passenger transportation. The wharves are used to handle passenger traffic and general merchandise, there being no special commodities handled in large quantities. The principal use of the harbor is as a thoroughfare, rather than as a terminal, as by passing through the strait vessels avoid a detour of about 8 miles, part of which is exposed to the open sea and at times is impracticable for small craft.

147. *Extent of use.*—The region around South Bristol is very popular as a summer resort, and during the season has a considerable population of summer residents and tourists, and a consequent large freight and passenger traffic. South Bristol is one settlement or landing in this region. It is served by three steamboat lines. One line of small steamers makes connection with the railroad at Damariscotta. This is a favorite passenger route. Another, which is more of a freight line, runs from Portland, and the third runs from Boothbay Harbor to South Bristol. All these use the wharves at South Bristol as passenger and freight terminals. Some of them pass through the strait to landings eastward. In addition to the freight handled by steamers, a considerable amount of coal, hay, grain, flour, fish, etc., is landed by small sailing or gasoline packets. Considered as a thoroughfare, the harbor is used to a large extent in the summer time, mainly by pleasure and fishing boats. The number of draw openings runs as high as 200 or more per month during the busy season. The number of vessels passing exceeds this, because at some stages of the tide fishing boats and others without masts pass without opening the draw.

148. *General efficiency.*—The water terminals of South Bristol Harbor are in good condition, but are not provided with modern freight handling appliances, because the small amount of traffic would not justify the use of machinery. As a terminal it meets the existing demands efficiently. As a thoroughfare the harbor is of low efficiency, the strait being shallow, not more than 2 feet being available at mean low water, and obstructed at and near the bridge by points of ledge that project into the channel, making navigation difficult at all times and impossible at and near low tide. A project for improvement of this condition has been adopted by Congress.

149. (*b*) There is at South Bristol no physical connection between the water terminals and any railroad, nor is there any contract be-

(*b*) Physical connection between water terminals and railroads.

tween any water carriers and any railroad or railroads for interchange of traffic at this point by prorating.

150. (*c*) The water terminals are all connected with the highways of the locality, which are not highly improved but are good gravel roads and adequate for the present traffic.

EAST BOOTBAY HARBOR, ME.

151. (*a*) *Location.*—East Boothbay Harbor is about 52 miles distant by water northeastwardly from Portland, Me. It is on the west shore of the Damariscotta River, 3 miles above the mouth, and is distant from Boothbay Harbor 3 miles by land and 11 miles by water. The water terminals are located along the southerly part of the water front.

152. *Description.*—East Boothbay is a village of about 1,000 inhabitants. It has four or five stores, two of which deal in general merchandise, including provisions. There is one sawmill, one gasoline-engine works, and five active concerns for building and repairing wooden vessels, such as fishermen, coasting schooners, and all kinds and sizes of sail and power yachts. It is part of a popular summer-resort region, and to meet the demands of summer residents is an important part of the business of the community. The nearest railroad station is at Newcastle and Damariscotta on the Maine Central Railroad, about 17 miles north of East Boothbay.

153. This harbor is a cove of about 7 acres in extent, shaped roughly like a shallow crescent. There are seven wharves or piers extending out into the harbor, all located on the 1,100 feet of shore front forming the southerly part of the crescent. The river opposite East Boothbay is very deep, a depth of 25 feet at mean low water being found within 400 feet of the pierheads. It shoals rapidly, so that the natural depths at the wharves varied from nothing to 5 feet, except at one, which had 7 feet at mean low tide. The harbor has recently been improved by the Federal Government by dredging to the depth of 8 feet at mean low water. This depth is now available at three of the wharves, and the others can reach it by short extensions. The mean range of tide is 9.1 feet. The wharves are pile or timber crib structures, and all but two are in good condition. Three wharves are parts of boat and ship building plants that are in active use. One, which is in ruins, is part of an idle shipyard. One wharf is owned and occupied by a local coal dealer. It has shears for hoisting coal and a shed for storage. McDougalls Wharf is owned by a local concern and has storehouses, but no other accessories. The last, which is in poor condition, is occupied by the Eastern Steamship Corporation.

154. *Method of use by vessels.*—East Boothbay not being within practicable teaming distance of a railroad is dependent upon water carriers for passenger and freight transportation. Two lines of steamboats operate regularly upon its harbor. One line runs on the Damariscotta River from the railroad at Newcastle and Damariscotta, the head of navigation, to East Boothbay and other ocean points. This line uses McDougalls Wharf. A line of the Eastern

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(a) General location and description.
(c) Connection with highways.

Steamship Corporation makes three round trips per week in the summer and two round trips per week in the winter between Portland and East Boothbay. In addition a small power boat makes regular trips between Boothbay Harbor and East Boothbay.

155. *Extent of use by vessels.*—The freight-handling wharves of this harbor are not used to a great extent, compared to their capacity. The annual freight traffic is estimated to be about 8,000 short tons. About 1,000 tons of this is coal, wood, and lumber, discharged at the coal wharf. The remainder is mostly general merchandise, handled by the steamboat lines. The passenger traffic is estimated to be about 12,000 annually, of which about 9,000 are handled by the Damariscotta River Line. The most extensive use of the water front is by the shipbuilding concerns, the aggregate business of which is about $100,000 annually.

156. *General efficiency.*—The steamboat wharves at which most of the freight and all the passengers are handled, although without special appliances, are used by small vessels only, and are efficient under the present traffic. The same is true of the coal wharf. The shipbuilding plants are equipped with modern machinery suited to the work to be done, and are highly efficient. Boats are made here for service all along the Atlantic coast.

157. *Whether open to use by all vessels.*—There are no terminals owned by the public, but all the wharves are open to use by all vessels on equal terms, not by legal right, but by consent of the owners.

158. *Terms and conditions of use.*—No common schedule of wharfage charges is in force, special terms being made to suit occasion.

159. (*b*) The nearest railroad being 17 miles from East Boothbay, there is no physical connection between its wharves and any railroad or railroads.

160. *Prorating.*—There is no contract between any water carriers and any railroad or railroads for interchange of traffic at East Boothbay by prorating. Passengers, baggage, and express matter can be ticketed or billed through from rail points on the Maine Central Railroad and its connections to East Boothbay.

161. (*c*) The water terminals of East Boothbay all have connection with the public highways, which, though not highly improved, are adequate to the demands of present traffic.

BOOTHBAY HARBOR, ME.

162. (*a*) *Location.*—The town of Boothbay Harbor lies northeasterly from Portland and distant about 40 miles by water. It is reached by no railroad. The most available railroad station is on the Maine Central Railroad at Newcastle, about 14 miles northerly of Boothbay Harbor.

163. The harbor lies about 5 miles from the open sea, at the northerly end of a narrow bay. It consists of two parts, the outer harbor and the inner harbor, the latter being the extreme northerly part. The inner harbor is crossed near the northerly end by a footbridge, which has a draw for the passage of vessels. The water terminals are

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

practically all situated on the inner harbor, all but one being south of the footbridge.

164. *Description.*—Boothbay Harbor has a permanent population of about 2,500. The coast line in the vicinity is irregular, with many islands, bays, and coves, which are very popular as summer resorts. This region is estimated to have a summer population of 25,000, of which Boothbay Harbor is the center. The business of meeting the demands of the summer population is a very important part of the industry of the town. In addition to this business, there is considerable commerce in fish, there being a number of sardine and packing factories, a cold-storage plant for keeping bait, and a smoking and curing plant. Other industries are the storage and shipment of ice and the construction, repair, and storage of small vessels, yachts, and boats.

165. The outer harbor has an area of about one-half of a square mile and a depth of 20 to 30 feet at mean low water. It is well sheltered and is much used by fishermen and coasting vessels as a harbor of refuge and for anchorage while obtaining bait, chandlery, and supplies. The inner harbor is about one-eighth of a square mile in area, and its anchorage ground ranges from 12 to 30 feet in depth at mean low water. It is perfectly sheltered and is used by small vessels, such as coasters, fishermen, and yachts for refuge and anchorage. The mean range of tide is 8.8 feet.

166. There are 24 wharves or water terminals, all of which are located in or near the inner harbor. With the exception of 3 wharves, which are owned and occupied by one concern, no two terminals are owned or controlled by the same party. On the outer harbor there are available many excellent sites for wharves, so that there is plenty of room for expansion and no present danger of monopoly. As far as could be learned, there is no publicly owned water front except that used by the United States as a fish hatchery.

167. All the wharves are timber platform on wooden pile foundations. One wharf—a sardine-packing plant—has recently been destroyed by fire, and two other wharves are in poor condition. The rest are in good or fair condition. There are no special appliances for loading or discharging cargoes, except coal and ice. Coal is shoveled into buckets, hoisted by steam power to elevated runways, and wheeled in barrows to storage piles or sheds. One concern intends to install an electric coal-handling plant. At the ice houses there are power appliances for transferring ice between the houses and vessels. There are also small hand derricks or booms for transferring fish between wharves and vessels. Other accessories are marine railways and shops for building and repairing vessels, together with storehouses, freight and passenger sheds, and plants for packing, curing, smoking, and freezing fish.

168. The depth of water at the various wharves varies from 2 to 26 feet at mean low tide. Two have over 20 feet, three have between 12 and 18 feet, six have from 10 to 12 feet, six have from 6 to 8 feet, five have about 4 feet, and the rest are out at low tide.

169. *Method of use by vessels.*—Boothbay Harbor is 14 miles from the railway station, over roads that are not highly improved. There is no street railway, and the only regular connection with the railway

by land is by stage. Consequently practically all the freight and passenger traffic of the locality is handled by water, and the most important use of terminals by water carriers is in the transportation business. Five wharves are used in this way. One of these is a hotel wharf and one is a yacht club. The other three are used by regular lines of freight and passenger steamers. Probably the traffic next in importance is the fish business, in which seven wharves are used. Three wharves are used in the coal, wood, and lumber business, two in the ice business, and four as general business terminals. Three terminals are used for the construction, repair, and storage of small vessels, yachts, and boats.

170. *Extent of use by vessels.*—The total annual traffic over Boothbay Harbor terminals is estimated to be 120,536 short tons of freight and 124,000 passengers. The three commercial transportation terminals are used by seven different lines of small freight and passenger steamers. Three of these lines belong to the Eastern Steamship Corporation and land at one wharf. At these three wharves about 43,350 tons of general merchandise, 1,100 tons of coal, and 103,000 passengers are handled annually. At the fish terminals the annual traffic is about 8,856 tons, including fish, oil, cans, boxes, and salt, which represents considerable business in that line. About 11,730 tons of coal, 8,450 tons of wood and lumber, and 41,000 tons of ice are handled annually. At the shipbuilding terminals vessels with an aggregate tonnage of at least 5,000 per year are hauled out and repaired. The general business wharves are but little used, having a traffic of about 2,150 tons per year.

171. On the whole, and compared with their capacity, the terminals of Boothbay Harbor are used only to a moderate extent. The fish business in 1912 was light, one sardine factory having burned down and the others having produced only a small pack.

172. *General efficiency.*—With the exception of two wharves that are in poor condition and one that has been damaged by fire, the water terminals of Boothbay Harbor are fairly efficient under the existing traffic, which is not large enough to warrant expensive plants for handling freight or passengers. It is planned to install improved machinery for handling coal at the coal wharf. Ample depth of water is available at some of the wharves, and a project for improvement by increasing the area of the inner harbor by dredging and providing 12 feet at mean low water in the vicinity of all important wharves has been adopted by Congress.

173. *Whether open to all water carriers.*—Sixteen out of the twenty-four terminals are open to the use of all vessels on equal terms. This is at the convenience of the owners. At present the wharves available for such service exceed the demand. Eight wharves are open only to vessels doing business with the occupants.

174. *Terms and conditions of use by vessels.*—There is no regular schedule of terms and conditions in common use to govern the use of terminals by water carriers. As a general thing special terms are made for each occasion. One wharf that is in little demand is used without charge by small vessels. At another $0.50 per day is charged for dockage or side wharfage.

175. (*b*) Boothbay Harbor is served by no railroad of any kind, and therefore there is no physical connection between any of its water terminals and any railroad or railroads.

176. *Prorating.*—There is no contract between any water carriers and any railroad or railroads for interchange of traffic at Boothbay Harbor by prorating.

177. (*c*) A marginal highway has been built along the entire shore front of the inner harbor and along the greater part of the shore front of the outer harbor. This highway is not highly improved, but is adequate for the existing traffic. All but 2 of the 24 terminals have good connection with the marginal highway. One of the two is the yacht club and the other is on an island at the mouth of the inner harbor.

KENNEBEC RIVER, ME.

178. (*a*) *Location.*—The Kennebec River flows into the Atlantic Ocean about 28 miles east of Portland, Me. The general direction of the flow of the river is from north to south. The principal water terminals are located at the following points:

Name of place.	Side of river.	Miles above mouth.
City of Bath	West	13
Town of Richmond	do	27
Town of Dresden	East	29½
City of Gardiner (south end)	West	33½
City of Gardiner	do	37½
Town of Farmingdale	do	38½
City of Hallowell	do	42
City of Augusta	do	44

179. *Description.*—The above-named places are all except Dresden served by the Maine Central Railroad. A branch of this road goes to Bath, while the main line lies along the west bank of the Kennebec from Richmond to Augusta, where it crosses the river and continues upstream on the east bank. Dresden is served by no railroad.

180. The Kennebec River is a remarkably good inland waterway from the mouth to Augusta. It is subject to tidal fluctuations in depth and current throughout this length. The channel is of ample width and has difficult turns at only three places. A draft of 28 feet can be carried at mean low water up as far as Bath. This limit is caused by one short shoal, most of the channel below Bath being 30 feet or more deep at mean low water. Sixteen and one-half feet can be carried at mean low tide up as far as Gardiner, except at Richmond, which is off the main channel and where local shoals at present limit the depth of channel to about 8 feet at mean low water. There is now under consideration by Congress an approved project for obtaining 15 feet at mean low water at Richmond. A highway bridge with an efficient draw crosses the river at Gardiner. From Gardiner to Augusta the channel is 11 feet deep at mean low water.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

The depths to the terminal points above Bath have been obtained by dredging and rock excavation. Below a point about 22 miles from the mouth the depths are natural. The tidal currents are fairly strong, and vessels are generally moved on a favorable current. The following tidal data is published by the United States Coast and Geodetic Survey:

Place.	High water (time after high water at mouth).	Mean range of tide.
	H. min.	*Feet.*
Mouth of Kennebec	0 00	8.3
Bath	1 04	6.4
Richmond	2 49	5.3
Gardiner	3 44	5.0
Hallowell	3 55	4.3
Augusta	4 04	4.1

181. At Augusta the river is crossed by a highway bridge, a railway bridge, and a dam in the order named, going upstream. The highway bridge has no draw and is practically the limit of navigation by vessels from the sea, although small boats without masts can pass beneath it and the railway bridge. The dam forms the limit of tidal flow. It once was provided with a lock for the passage of small vessels, but it is no longer in operation. Above the dam at Augusta the Kennebec is interrupted at frequent intervals by falls, dams, and bridges, and is navigable only by small boats, rafts, and logs.

182. Practically all the wharves or water terminals on the Kennebec are built parallel to the bank and project but little into the stream. With one exception, they are built wholly or in part of timber cribs, ballasted with rock, and in many cases filled solid with earth and rock. One is built of piles with a wooden top, and a small number are combinations of these two types.

183. None of the terminals on the Kennebec are provided with mechanical appliances for handling freight or transferring it between water and land, except in the case of the ice terminals, and the coal wharves. At Bath, Richmond, Gardiner, Hallowell, and Augusta the coal wharves are provided with shears or derricks for hoisting and stages and runways on which coal is wheeled in barrows to sheds, piles, or cars. One wharf each in Augusta and Hallowell has pockets on the wharf, in which coal is stored to load carts by gravity. At all terminals it is shoveled into tubs in the holds of vessels and hoisted by steam power, generally furnished by a floating hoister. One plant in Augusta, owned by the State, has a stationary hoist and delivers coal to a mechanical conveyor, which carries it up over a steep hill to the buildings. One concern in Augusta plans to establish a modern mechanical coal-handling plant next spring.

184. There are on the river between Bath and Augusta 13 plants for the storage of ice and its shipment by vessel. In general, each plant consists of one or more storage houses, with a harvesting run with power, which mechanically conveys the ice from the water and delivers it to runs or tracks, along which it slides by gravity to

various parts of the storehouses. Each plant has also a shipping pier, at which vessels lie to receive cargo. Ice is transferred from the house to the shipping pier along runs or tracks partly by gravity and partly by mechanical conveyor. At the shipping pier it is transferred to the hold of the vessel by a very ingenious automatic drop. The following tabular statement gives the capacities of the various ice terminals, the depth of water at shipping piers, the location, and the names by which they are locally known. They all belong to the American Ice Co.

American Ice Co., Kennebec River, January, 1913.

No.	Name.	Location.	Depth (mean low water).	Capacity.
			Feet.	*Short tons.*
1	Swan Island	East side Swan Island near Beef Rock	20	10,000
2	Underwood	East side Swan Island above Lovejoys Narrows	15	10,000
3	Stearns Point	East side of river at head Swan Island	15	44,000
4	Hodges Place	West side west branch below Richmond	12	31,000
5	Modoc	West side river below Court House Point	17	24,000
6	Cedar Grove	East side river at Cedar Grove	15	46,000
7	Berry's	East side river above The Bluff	13	46,200
8	Hathorn Place	East side river at Hathorn Rock	13	10,000
9	Independent	East side river above South Gardiner	13	60,000
10	The Ledges	East side river above Greens Ledges	10	34,170
11	Knickerbocker	East side river below Gardiner	16	60,000
12	.....do	East side river opposite Farmingdale	11	30,000
13	.....do	East side river opposite Browns Island	10½	20,000
	Total			425,370

185. The city of Bath is on the west side of the river, along which its commercial water front extends for about 3 miles. The river along this water front has exceptionally bold shores, and is from one-fourth to one-half of a mile wide and 30 feet or more deep at mean low water.

186. There are in Bath 27 water terminals, and they may be classified as follows:

	Active.	Idle.
Shipbuilding	6	3
Coal handling	7	.....
Transportation	5	.....
General	2	3
Mill	1	.....
Total	21	6

Five of the shipbuilding terminals, of which three are at present idle, are plants for the construction and repair of wooden vessels. One is a plant for the construction and repair of steel vessels, boilers, engines, tanks, stacks, etc., and one is a plant for construction and repair of steam windlasses and other apparatus and machinery for the equipment of vessels. The two latter terminals each have plants for the discharge and storage of coal or similar commodities for their own use. The shipbuilding terminals in active use are in excellent condition and well equipped with shops for working in the mate-

rials used. The idle plants are in good condition as to their wharves, but in some cases the buildings are in poor condition. There is ample depth of water at all plants, those for wooden vessels having at least 12 feet at mean low water at the piers, with much deeper water a short distance out, and the plants for windlasses and iron vessels having 21 and 27 feet at mean low water, respectively.

187. The coal-handling plants are supplied with shears or derricks for hoisting, and with elevated stages or runways leading to storage piles, sheds, or railway tracks. All but one are in fair or good condition. Five are owned and occupied by local dealers, one by the gas company, and one by an inland paper mill. The depth of water at the coal wharves ranges from 12 to 17 feet at mean low tide.

188. One transportation terminal is owned and occupied by the Maine Central Railroad. It is provided with railroad tracks and with derricks, shears, stages, and runways for hoisting coal and similar bulk commodities, and transferring them between water and rail carriers. It has one small stationary engine for hoisting. It also has a slip for a car ferryboat by which trains are transferred across the river. This terminal is in excellent condition and has from 12 to 20 feet of water at mean low water alongside the wharves. One terminal consisting of two piers, with freight and passenger houses, and a coal discharging and storage plant, all in good condition, is owned and occupied by the Eastern Steamship Corporation. It has 12 feet at mean low water at its piers. Another transportation terminal is owned by a local concern and let to two local lines of small steamboats. It has 15 feet at mean low water but no accessories. There are two public landings. One has a ferry slip that is used by a ferryboat that carries passengers and teams across the river, and one is provided with a float for a small boat landing. One has 12 and one 10 feet at mean low water.

189. Of the general business terminals, the three idle ones have no storehouses or other accessories. They are in fair condition, and have 12 to 15 feet of water at mean low water. The other two are in fair or good condition, have derricks or shears, and runways, sheds and storehouses, and have 15 to 16 feet of water at mean low water.

190. The one mill terminal has a new and efficient mill for converting lumber into box shook. It has about 14 feet at mean low water.

191. The town of Woolwich lies across the river from Bath. There are no active water terminals here except slips for the car and passenger ferryboats.

192. At Richmond there are 14 terminals and they may be classified as follows:

	Active.	Idle.
Manufacturing	2	2
Coal	2	.....
General	3	.....
Transportation	2	.....
Ice	1	1
Public	1	.....
Total	11	3

With the exception of one ice wharf, which has 6 feet, and one manufacturing and two general wharves that run practically dry at mean low water, the wharves at Richmond have 10 to 12 feet at mean low water alongside. Of the two idle manufacturing terminals one has the ruins of a steam sawmill and is in poor condition generally. The other has a brick spinning mill and a coal-discharging plant, all in fair condition. Of the other two one has a steam sawmill with a log conveyor and rolls for distributing sawed lumber about the wharf, all in excellent condition, and one has a pumping station for the local water supply and is in poor condition. The coal wharves and accessories are in good condition. They are owned and occupied by local retail dealers. The general business wharves are in good condition. One has no accessories and two have floating landing stages and accessories are in good condition. They are owned and occupied by the Eastern Steamship Corporation, has freight and passenger houses, and the other is used by a local steamboat line and has no accessories. Both in good condition. One ice wharf, owned and occupied by a local dealer, has a storage house and means for transferring ice from the river, all in good condition. The other has no accessories and is in poor condition. The public terminal is simply a small piece of river front owned by the town, at which a float stage for a small-boat landing is maintained.

193. At Dresden there is one wharf, owned and occupied by the Eastern Steamship Corporation. It has a depth of 16 feet at mean low water, a passenger and freight house, and is in excellent condition.

194. At Gardiner (south end) there are three terminals, each having about 10 feet of water at mean low water. Two are occupied by steam sawmills, each having a log conveyor and one having chutes with rolls for distributing sawed lumber about the wharf. Both are in good condition. The third wharf is not used. It is owned by the International Paper Co., and occupied by a dismantled pulp mill. It also has a coal handling plant arranged for mechanically transferring coal from vessels to the mill. The whole plant is in fair condition, but will probably never be used as a pulp mill again.

195. At Gardiner there are nine terminals classified as follows:

	Active.	Idle.
Transportation	1	1
Coal	5	.....
Lumber	2	.....
Total	8	1

They all have from 9 to 12 feet of water at mean low tide. Two coal wharves and one lumber wharf are in the town of Randolph on the east side of the river opposite Gardiner. The idle transportation terminal is owned by the Maine Central Railroad and is now in poor condition. The other is owned and occupied by the Eastern Steamship Corporation, has passenger and freight houses, and a plant for discharging and storing coal, all in good condition. Three of the coal wharves are owned and occupied by local retail dealers—one by

a paper mill company and one by the United States. All are in good condition. One lumber terminal is also a general wharfage terminal. Part of it is let to a lumber concern and occupied by a lumber shed. It is also used as a landing place for a local line of small steamboats, and there is a floating stage for a small-boat landing. Part of the wharf is used by the owners for general wharfage business. It is all in good condition. The other lumber terminal is on the Randolph side, and is part of the plant of a small steam sawmill. It has no accessories, and is in fair condition.

196. At Farmingdale there are two terminals, each having about 12 feet of water at mean low water. One is part of a steam sawmill plant. It has a conveyor to take logs from the water, and the whole plant is in good condition. The other is part of a steam-electric power station, owned by the Central Maine Power Co., and used in connection with several hydroelectric power stations. At present the wharf is in poor condition, but it is probable that a new pier will be built in deeper water and a coal-handling plant installed, with a conveyor to transfer coal from vessels to the storage piles or to railway cars.

197. At Hallowell there are five terminals having from 7 to 9 feet at mean low water. Two are coal wharves owned and occupied by local retail dealers. One coal wharf is used also as a landing place for a local steamboat line. In addition to the appliances usual on the Kennebec, one has coal pockets for loading teams by gravity, with mechanical elevator for moving coal from the piles to the pockets. One wharf is owned by the Hallowell Granite Co. It has a plant for discharging coal and two derricks for transferring heavy freight between vessels and the shore. One derrick, run by electric power, has 20 tons capacity; the other, operated by hand, has less power. One wharf, owned and occupied by the Eastern Steamship Corporation, has a passenger and freight house. The fifth terminal is the river end of a county way and is public property. It has a small crib pier with a slip, which serves as a landing place for small boats in the summer and as a way to reach the river for crossing on the ice in the winter. There is also a cable by means of which a large ferryboat for passengers and teams crosses the river. All the wharves at Hallowell are in fair or good condition.

198. At Augusta there are seven wharves, five on the west and two on the east side of the river. All have from 8 to 9 feet at mean low water, are in fair or good condition, and are in use. Four are coal-handling and storage plants, three being on the west side and owned by local retail dealers and one on the east side and owned by the State of Maine. The latter has a stationary power hoist, with a cableway for transferring coal from vessels up over a steep hill to the buildings where it is used. One of the coal wharves on the west side has pockets for loading carts by gravity, with mechanical conveyors to move coal from the piles into the pockets. The owners of this wharf will probably install a modern mechanical coal-discharging plant next spring. Two wharves are transportation terminals, one having passenger and freight houses, and being occupied by the Eastern Steamship Corporation and a small local steamboat line, and the other being a public way and occupied by the club

house of the Augusta Yacht Club. The latter has a floating landing stage for small boats.

199. *Method of use by vessels.*—At Bath the most important use of water terminals is in the construction of wooden and steel vessels and their boilers, engines, windlasses, and other equipment. At the plants for wooden shipbuilding, vessels are built of all sizes, from small motor or row boats to the largest wooden sailing vessels in the world. The steel shipbuilding plant builds and equips all kinds of steel vessels, including tugs, yachts, and passenger steamers, and war vessels from the most delicate of torpedo boats to the heaviest of battleships. The use of the terminals for shipbuilding includes the discharge of a large amount of lumber. Next in importance is the discharge and transfer of coal, pulp wood, stone, and miscellaneous freight. About two-thirds of the coal is used locally and the rest reshipped by rail or lighter to points away from the river. Pulp wood and stone are reshipped by rail to near-by mills. The miscellaneous freight is to a great extent local traffic, but some of it is transferred between local steamers and coastwise steamers or rail. The coast to the eastward of the Kennebec does a large and growing business as a summer resort. This results during the summer in an important passenger and freight traffic, a considerable amount of which passes over the terminals at Bath. It is handled at the railway terminal where railway trains, both passenger and freight, are transferred across the river, and at the steamboat wharves where traffic is transferred from coastwise to river and bay steamers. A considerable local traffic is handled by the passenger and team ferryboat.

200. At Richmond the heaviest items of traffic are the delivery of logs and the shipment of lumber. Logs come down the river in rafts guided and sometimes towed by rowboats or small towboats. Next in importance is the delivery of coal and the traffic in miscellaneous freight and passengers at the steamboat terminals. The latter business is practically all local, as there is no interchange between water and rail.

201. At Dresden the wharf is used wholly by the steamboat lines to deliver and receive freight and passengers. The freight here is practically all farm products and supplies.

202. At Gardiner (south end) the wharves are used wholly for the receipt of logs and the shipment of lumber, except that one is used as an occasional landing place by a line of river steamers.

203. At Gardiner the principal use of the wharves is in the delivery of coal for local use, for domestic and manufacturing purposes. A number of large mills and factories, the Eastern Steamship Corporation, and the National Soldiers' Home at Togus receive their coal here. The steamboat wharves are used to handle a considerable traffic in passengers and miscellaneous freight, Gardiner being the limit of navigation by coastwise passenger steamers.

204. At Farmingdale the wharves are used at present only for the delivery of logs. It is probable that the Central Maine Power Co., which owns one wharf, will soon install a modern plant for discharging coal and conveying it to the shore, with arrangements for transferring it to rail for reshipment if desired.

205. At Hallowell practically all the traffic is the delivery of coal, together with a small passenger and freight business by the steamboat lines.

206. At Augusta the principal single use of the wharves is the delivery of coal for local use, chiefly domestic, though several manufacturing establishments, and one State institution receive coal here. There is a considerable delivery of logs and shipment of lumber, and an important passenger and freight traffic at the steamboat wharves and public landings.

207. The ice terminals between Bath and Augusta are used for the harvesting and shipment of ice. They are all owned by the American Ice Co., and held as a reserve to be used only when the harvest of natural ice fails in localities more favorably situated for shipping to the principal markets.

208. Logs are delivered at the various terminals in rafts, and lumber is shipped and received in sailing vessels, generally small. Coal and pulp wood are handled in steamers, schooners, and barges of various sizes, depending upon the depth of water available at the destination.

209. *Extent of use by water carriers.*—Taken as a whole, and in comparison to their capacity, the Kennebec River water terminals are not used to a large extent. In the busy season the steamboat terminals are probably more actively used than any others. The river is served by four lines of steamboats, as follows:

Eastern Steamship Corporation, coastwise, Boston to Gardiner, with auxiliary river steamers Gardiner to Augusta. April 15 to June 23, daily one way, except Sunday. June 24 to July 20, daily both ways, except Sunday. July 21 to September 10, daily both ways, including Sunday. September 12 to November 15, daily one way, except Sunday.

River and bay steamers, Bath to Boothbay. In winter, daily both ways. In summer, three trips each way, daily, except Sunday.

Augusta, Gardiner and Boothbay Steamboat Co. River and bay, Augusta to Boothbay, May 1 to October 1, daily both ways, including Sunday.

Popham Beach Steamboat Co. River and bay, Bath to mouth of river and intermediate points. In winter, daily both ways. In summer, 2 trips each way daily.

The following tabular statement shows the estimated annual freight and passenger traffic from Bath to Augusta. The actual storage capacity of the ice terminals is given and as the shipments are absolutely irregular the average annual amount can only be estimated. At present the superintendent of the ice company for this locality is under orders to fill all the houses on the Kennebec. In addition a considerable quantity will probably be stacked. The tonnage and passengers handled at the railway terminal at Bath has not been ascertained and is not included in the statement. This amount is large, because it includes all the traffic of the Rockland branch of the Maine Central Railroad east of the Kennebec River. There being no bridge across the Kennebec at or within 24 miles of this point the train ferry would probably be of considerable importance from a military point of view. The product of the shipbuilding terminals at Bath has not been learned and is not included in the statement. That of the steel shipbuilding plant alone averages in value between one and two millions of dollars annually. The following table shows the freight in short tons:

Locality.	Coal.	Logs.	Lumber.	Pulp wood, etc.	Sand, stone, and iron.	Cement and lime.	Miscellaneous.	Total.
Bath	67,600	.....	43,200	40,000	16,100	.....	19,800	186,700
Richmond	3,075	12,000	8,250	100	.....	.....	6,200	29,625
Dresden	.....	.....	.....	.....	.....	.....	2,500	2,500
Gardiner (south end)	.....	50,000	20,550	.....	.....	.....	.....	70,550
Gardiner	48,720	.....	3,880	.....	100	.....	8,900	61,600
Farmingdale	.....	12,000	.....	.....	.....	.....	.....	12,000
Hallowell	13,900	.....	.....	.....	100	.....	900	14,900
Augusta	27,800	22,000	10,950	.....	.....	1,600	4,500	66,850
Various landings, Richmond to Augusta	.....	.....	.....	2,000	.....	.....	.....	2,000
	161,095	96,000	86,830	42,100	16,300	1,600	42,800	446,725
American Ice Co., 13 ice houses between Swan Island and Augusta. Capacity, 425,370 tons, say, average annual shipments, ice								100,000
Total								546,725

	Passengers.
Bath	240,000
Richmond	4,000
Dresden	1,000
Gardiner	17,500
Hallowell	3,800
Augusta	15,500
Total	281,800

210. *General efficiency.*—The terminals for special business, such as shipbuilding, train ferrying, and lumber manufacturing, are modern and highly efficient, except that, in common with all the other terminals on the river, the depths of water at the docks is not equal to that in the main river channel opposite. The coal terminals are not as efficient as the traffic warrants, as is indicated by the fact that concerns at Gardiner and Augusta are planning to install more effective appliances. The railroad wharf at Bath is poorly arranged, in that the tracks for the transfer of goods between water and rail are practically perpendicular to the dock instead of parallel, so that about all the freight has to be wheeled. The steamboat and general business wharves are probably efficient and adequate for the present traffic.

211. *Whether open to all vessels on equal terms.*—At Bath, Richmond, Gardiner, Hallowell, and Augusta there are free public landings owned by the public, but they are fit only for use by small boats. There are no other wharves which are by legal right open to all vessels on equal terms, but there are at each locality an adequate number of wharves which actually are, by the consent of the owners, open to such use. In fact, the terminals available in this way exceed the demand. In general, the use of any wharf can be had by special arrangements when such use does not interfere with the business of the owner or tenant.

212. *Terms and conditions of use.*—In general, the terms and condition of the use of wharves by water carriers are subjects of special agreements, although there are at some places customary charges as follows:

Bath, 15 cents per ton wharfage; $1 per day per vessel dockage when not loading or discharging.

Gardiner, 10 cents per ton wharfage.

Hallowell, 10 cents per ton wharfage.

Augusta, 10 cents per ton wharfage; 20 cents per thousand feet board measure.

At Bath the railroad terminal is free to vessels that interchange freight with the railroad. Practically no others use it, as it is not suited to local business.

213. (*b*) At Bath three water terminals have physical connection with the railroad by means of spur tracks on the wharves, viz, the Hyde Windlass Co., Bath Iron Works, and Maine Central Railroad terminals. At these places freight can be transferred directly between water and rail carriers. The first two are not freight terminals, being used almost exclusively for the business of the owners, but can sometimes be used by other by special arrangement. The iron-works wharf is provided with a derrick of 78 net tons capacity and a floating derrick of 25 net tons capacity. Arrangements can generally be made for the use of this apparatus for transferring heavy pieces between railroad and vessels. Six other wharves at Bath, including the public landing, have a spur track running across their shore ends, but are not in practice used for transfer between rail and water, being less convenient than the railroad wharf. The steamboat terminal has connection with the electric street railway by means of a spur track on the wharf, and through this with the steam railway. This connection is used mainly to transfer express matter handled by the coastwise and river steamers. No other water terminals in Bath have physical connection with any railroad.

214. At Richmond the railroad is about one-fourth of a mile from the river front and on much higher ground and has no connection with any water terminal.

215. Dresden is not served by any railroad.

216. Gardiner (south end), the terminals are parts of manufacturing plants that have railroad connection by means of spur tracks in the mill yards, but not on the wharf. Direct physical connection between water terminals and railway could practicably be made if desired.

217. At Gardiner the railroad is close to the river, but is 10 or more feet higher than the tops of the wharves, and no physical connection exists between the railroad and any water terminal. Opposite Gardiner on the Randolph side the wharf used by the Federal Government has connection with a local narrow-gauge road that runs to the National Soldiers' Home at Togus.

218. At Farmingdale the water terminals are parts of manufacturing plants that have railroad connection by means of spur tracks in their yards, but not on the wharves. Direct physical connection between railroad and water terminals can practicably be made if desired.

219. At Hallowell the railroad is about one-fourth of a mile from the water front and on considerably higher ground and has no physical connection with the wharves.

220. At Augusta, on the west side, although the railroad is less than 200 yards from the water front, it is about 50 feet higher than high tide and separated from the river by improved and valuable property. On the east side there is no railroad below the highway bridge, the limit of navigation. No water terminals on either side of

(*b*) Physical connection between water terminals and railroads.

the river at Augusta have physical connection with any railroad, but on the east side such connection could practicably be made if desired.

221. *Prorating.*—There is no contract between any water carriers operating upon the Kennebec River and any railroad or railroads for interchange of traffic at Kennebec River points by prorating.

222. (*c*) A marginal highway extends along the entire water front at Bath. It is not highly improved, but is adequate for the existing traffic and connects at an easy grade with the principal streets of the city, which lie at a higher elevation. One coal terminal at the north end, used only by vessels, has no highway connection. The railroad wharf is not arranged to accommodate highway vehicles. All other water terminals in Bath have connections with the marginal highway, which, although in some cases steep and rough, are adequate for the present traffic.

223. At Richmond, Dresden, Gardiner (south end), Gardiner, Farmingdale, Hallowell, and Augusta there are also marginal highways along the water fronts. They are generally not so highly improved as the principal streets of those places and lie at a lower level, but are adequate for the existing traffic and have connection at practicable grades with the higher levels. The water terminals at these places are all connected with the marginal highways, which, as a rule, are higher than the wharves. Though a few of the connections are steep and rough, they are generally fairly good and adequate to the demands upon them.

PORTLAND HARBOR, ME.

224. (*a*) The city of Portland, Me., is located on the coast in the southwestern part of the State. It lies northeastwardly from Boston, Mass., from which city it is distant 110 miles by water or 115 miles by land.

225. The commercial part of the city of Portland is on a peninsula, which extends in a northeasterly direction into Casco Bay. Portland Harbor consists of three parts, viz:

The Front Harbor.
Fore River.
Back Cove.

226. The Front Harbor lies on the southerly side and at the eastern end of the peninsula and extends along a water front of about 2½ miles. Fore River also lies on the southerly side of the peninsula and extends westerly from the Front Harbor about 1⅓ miles. It is separated from the Front Harbor by a bridge. The Front Harbor and Fore River constitute also the harbor of the city of South Portland, which lies along their southerly shores, and has a water front of about 2½ miles. Back Cove lies on the northerly side of the peninsula. It is nearly landlocked, approximately circular in form, about 1 mile in diameter, and has a narrow, bottle-necked entrance. It has a present available water front of about 1¾ miles. The total water front of the three parts of the harbor is 8.08 miles.

(*a*) General location and description.
(*c*) Connection with highways.

227. There are 46 water terminals or wharves in Portland Harbor, and they may be divided according to their location into three groups, viz:

	Wharves.
Front Harbor and Fore River, city of Portland	31
Front Harbor and Fore River, city of South Portland	9
Back Cove, city of Portland	6
Total	46

228. For treatment under the headings designated in the act, the harbor will be considered as a whole and the wharves will be divided into groups according to the way they are used, as follows, viz:

	Wharves.
Transportation terminals	12
Coal and lumber	11
Manufacturing	7
Marine construction	3
Oil	2
General business	6
Idle	5
Total	46

229. The harbor is well sheltered, and has a large anchorage ground with a natural depth of 30 feet or more at mean low water. A breakwater has been built by the Federal Government to afford more perfect protection to a portion of the Portland water front, and the Front Harbor and Fore River have been improved by dredging to the depth of 30 feet at mean low water, and Back Cove to the depth of 12 feet at mean low water. A project to enlarge the anchorage ground by dredging to the depth of 30 feet at mean low water has been adopted. The mean range of tide is 8.9 feet. The harbor is crossed at the entrance to Fore River by a highway drawbridge. Farther west a railway drawbridge and a second highway drawbridge cross the improved part of Fore River. The entrance to Back Cove is crossed by a railway drawbridge and a highway drawbridge. Each draw opening in the harbor is 60 or more feet wide and all the drawspans are modern and efficient.

230. The northerly shores of the Front Harbor and Fore River are the only parts of the harbor that have been extensively developed for commercial purposes. The southerly shores of the Front Harbor, Fore River, and the shores of Back Cove are largely undeveloped, but the most available part of the Back Cove water front is under railroad control or ownership. There is room for expansion, and no present danger of monopoly.

231. There are no wharves owned by the Government, either Federal, State or municipal, in Portland Harbor. The city of Portland controls two lots of water front. The first lot of municipal water front, the end of Thames Street, is on the north side of the main harbor, at the head of the dock between Galt and Franklin Wharves. It is suitable only for a boat landing. The second lot is a shore front about 500 feet long and is situated on the Front Harbor at the southerly end of the east shore of the peninsula. It is a suitable location for a large public pier with railroad and highway connections.

232. The transportation wharves are divided into two groups, one of which lies at the extreme eastern and the other at the extreme

western end of the peninsular. These groups constitute the terminals for through business. They are modern and well fitted and have efficient mechanical appliances for handling some kinds of commodities. The depths of water at these wharves is generally 30 feet at mean low tide.

233. The wharves lying along the south side of the peninsular, between the through terminals, are used for general mercantile and manufacturing purposes. These include the greater part of all the wharves on the harbor, and constitute the local terminals. As a rule these wharves are old and not provided with modern means of handling freight. The depths of water range from 6 to 15 feet at mean low tide. While many of these wharves are of ample length, the docks between them are generally too narrow and too shoal to accommodate modern freight carriers. The construction of these wharves is such, that to obtain adequate depth in the docks by dredging would wreck them. In short, a general reconstruction of these local terminals would be necessary in order to fit them for use by modern large vessels.

234. The transportation terminals may be subdivided into three groups of wharves as follows:

The Grand Trunk wharves.
The Portland Terminal Co. wharves.
The Coastwise Steamship wharves.

235. The Grand Trunk wharves are owned by the Grand Trunk Railway system. They are located on the easterly part of the harbor where, with the exception of two small lots, the Grand Trunk owns a continuous stretch of at least one-half of the entire Portland water front on the Front Harbor, and in addition a small lot on the north side of the entrance to Back Cove. This terminal includes five wharves, viz:

New Wharf, Ocean Wharf, Atlantic Wharf, and Galt Wharf on the front harbor, and the coal wharf on the north shore of Back Cove at the entrance. The wharves are all wooden platforms on pile foundations; the first three on the front harbor were designed for handling transoceanic passenger and freight traffic. They are covered with freight sheds and provide 6 berths, 500 to 550 feet long, with a depth of water of 30 feet at mean low tide.

236. In order that freight may be accumulated and kept in readiness for rapid delivery to vessels, this terminal also includes freight yards with a capacity of 2,500 cars, stockyards capable of accommodating 1,700 head of cattle for rest and feed, and two grain elevators with a combined capacity of 2,500,000 bushels. Conveyor galleries extend from the elevators the whole length of each berth.

237. On the wharves there is a reception room with a capacity of 600 passengers, together with room and offices for Government immigration and customs officials. Galt Wharf has no shed, but has an elevated loading platform, and provides berth 450 feet long, with a depth of 26 feet at mean low tide. The coal wharf is provided with a modern and efficient coal-handling plant, consisting of pockets with storage room for about 2,240 short tons, and 4 towers with a capacity of about 3,360 short tons per day. With the exception of the grain elevators and the coal-handling plant, this terminal has no appliances for loading and discharging ships by machinery. Freight is handled

between vessel and wharf platform by the ships' gear. For handling heavy pieces on the wharf, traveling cranes are provided by the railway.

238. *The Portland Terminal Co. wharves.*—This terminal is owned by the Portland Terminal Co., which is a corporation subsidiary to the Boston & Maine and Maine Central Railroads, and operated in the interest of those roads. It includes a small lot of shore front at the extreme western end of the north shore of the front harbor, and, with the exception of one small lot, the entire north shore of the improved part of Fore River.

239. This subgroup consists of four wharves, viz, Wharf No. 1, Wharf No. 2, Wharf No. 3, and Western Division Wharf. They are all combination structures of solid fill and wood platforms on pile foundations. Wharves Nos. 1 and 2 and Western Division Wharf provide berths for one vessel each. Wharf No. 3 can accommodate several vessels at once. The depth of water at Wharves Nos. 1 and 3 is 30 feet, at Wharf No. 2 is 28 feet, and at Western Division Wharf is 12 feet at mean low tide. Wharves Nos. 1 and 2 and Western Division Wharf are coal-handling plants. Wharf No. 1 has coal pockets with storage capacity of about 5,000 short tons, and three towers, with a combined capacity for handling 3,900 short tons per day. Wharf No. 2 has no pockets, but has elevated runways with tramways and cars that automatically distribute coal to various piles, or chutes to cars, and to the Portland Gas Light Co. coal shed near by. It has two towers with a combined capacity for handling about 1,900 short tons per day. Western Division Wharf has a coal shed with storage capacity of about 5,000 short tons, and one tower with a capacity for handling about 500 short tons per day. These coal wharves are fitted only for discharging coal, sulphur, brimstone, ore, or similar commodities in bulk. Nos. 1 and 2 are provided with railroad tracks and are fitted to transfer such commodities to cars for carriage by rail. Western Division Wharf is alongside the railroad, but is fitted only to discharge and store coal for use by the railroad. Wharf No. 3 is fitted to do a general business of transferring rough, heavy, and bulky freight both ways between water and rail carriers. It is provided with railroad tracks along its entire length. There are four towers and one derrick to handle pulp wood from water to rail, one derrick with steam power to handle heavy articles, and portable diggers moving on the railroad tracks to handle ore or similar freight from open cars to vessels. In connection with this terminal there are freight yards with a storage capacity of 500 freight cars.

240. *The coastwise steamship terminals* are used by lines of steamships that ply between Portland and New York and various points on the coast from Boston, Mass., to St. John, N. B., by local steamboat lines and by steamers of the United States. These wharves, three in number, are on the north side of the front harbor, near the easterly end.

241. All three are combinations of solid fills, with wood platforms on pile foundations. At one wharf there is a depth of water of 20 to 23 feet, and at the other two of 14 feet at mean low tide. All three have freight sheds and paved roadways, and one has railroad tracks with loading platforms for transfer between water and rail. All have water and electric light and power service, and one has gas.

On one wharf the roadway is a public street. It terminates in a ferry slip which is owned and maintained by the city. They are all owned by corporations or individuals and leased to various tenants.

242. *The coal and lumber terminals* are 11 wharves, at which coal and lumber are the principal freights handled by water carriers. These commodities are received, stored, and shipped by the various dealers who occupy the wharves either by ownership or lease. Eight of these wharves are located from the central to the western part of the north short of the front harbor, the lumber wharves being nearer the western end. Two are in Back Cove and one on the south shore of the front harbor. All are either solid fills, wood platforms on piles, or combinations of both. In some cases the solid fills are inclosed by stone walls. Three have in part stone-paved roadways; eight have roadways of earth and plank. All except one on the south and one on the north shore of the main harbor are provided with spur railroad tracks. Three of the coal wharves have mechanical appliances for unloading coal, ample pockets for storage and transfer to wagons or railroad, screening apparatus, and automatic overhead tramways for distributing coal as it is removed from vessels to various points on the wharves. At the other coal wharves floating hoisters, in connection with shears and elevated runways, are used to transfer coal from vessels to sheds. At the lumber wharves, where heavy hard-pine sticks are handled, there are winches and derricks, generally with electric power, for removing lumber from vessels and transferring it to storage piles, wagons, and the railroad. The depths of water at the coal and lumber wharves vary from 6 to 20 feet at mean low tide.

243. *The manufacturing terminals* are seven wharves, each occupied exclusively by a separate manufacturing concern. One is on the north and one on the south side of the front harbor. Two are on Fore River and three in Back Cove. With one exception these wharves are solid fills or wood platforms on pile foundations, or a combination of the two. Some of the fills are inclosed by stone walls. One wharf is under construction, and will probably be a concrete platform on concrete pillars. The depths of water vary from 6 to 18 feet at mean low tide. The only mechanical appliances for handling cargo are shears and small derricks for transferring from ship to wharf. In one case power for hoisting is furnished on the wharf. In the others it is done by floating hoisters or hand power.

244. *The marine construction terminals* are three wharves used in connection with the building and repair of vessels, wharves, and bridges. All are on the front harbor; one at the east end of the north side, and two on the south shore. All are wood platforms on pile foundations. Two of them, the shipbuilding wharves, have depths from 8 to 19 feet at mean low water. The other one has about 1 foot at mean low water. One shipbuilding wharf has shears with electric hoist of 60 tons capacity. In connection with this wharf are carpenter shops, machine shops, foundry, and boiler shops with a management experienced in building and installing marine engines and boilers and otherwise finishing and equipping steam vessels. The other shipbuilding wharf consists of two piers, with derricks, and in connection with them are two marine railways with cradles 90 and 220 feet long, respectively, with power for hauling out vessels, and shops equipped with woodworking machines and

air compressors for operating small tools. The third wharf has no equipment except small storehouses.

245. *The oil terminals* are two wharves used for the receipt and shipment of kerosene oil and other petroleum products. They are both on the south side of Fore River, and are both pile platforms with about 20 feet depth of water at mean low tide. They are equipped with pipe lines for conveying oil from the ends of the piers to tanks on shore.

246. *The general business terminals* are six wharves each occupied by several mercantile concerns. They are all on the north side of the front harbor. One is a wooden platform on pile foundation. Five are combinations of solid fill and wood platform. Two have paved roadways. Four have roadways of earth and plank. Four have physical connection with the railroads. Two have not, but are within practicable connecting distance of the railroad. The depths of water vary from 7 to 17 feet at mean low tide. There are no appliances for handling freight except small hand-power derricks.

247. *The idle terminals* are five wharves not used by water carriers. Three are on the north side and one on the south side of the front harbor, and one is on the south side of Fore River. Those on the north side of the front harbor were originally combinations of solid fill and wood platform on piles, but they have been burned so that only the solid fills remain. Those on the south shore are wood platforms on piles with from 1 to 6 feet of water at mean low tide. One of those on the south shore has no accessories except a storehouse. The other is intended for use in connection with a large ice house, and has a conveying system to transfer ice from the house to a vessel at the end of the pier. None of these wharves are in use by water carriers, three having been burned and being unfit for use, and no business being done at the other two.

METHOD AND EXTENT OF USE BY WATER CARRIERS.

248. Portland Harbor as a whole is not used for traffic in any one special commodity. It may be called a general merchandise port. It is served by six lines of coastwise steamers, which ply to New York, N. Y., Boston, Mass., St. John, New Brunswick, and Rockland. Boothbay, Stockton Harbor, and other Maine ports. Five of these lines belong to the Eastern Steamship Corporation. There are two lines of steamers plying between Portland and points in Casco Bay. It is the winter port of several lines of ocean steamers running to ports in Great Britain and Germany. It is the occasional port of a large number of ocean carriers, both steam and sailing vessels, not belonging to any regular line. The greatest use made of the port is by coal carriers, both steam and sailing vessels, which bring coal from the coal ports of the United States and Canada. As a harbor of refuge, Portland Harbor is very important to coastwise and fishing vessels. The number that use it in this way can not be stated with accuracy, but it is large, amounting to many hundreds each year.

249. As a whole and in comparison to its capacity, Portland Harbor is not used to a large extent. The annual freight traffic is estimated to be about 3,434,063 short tons, of which about one-half is coal. The number of passengers arriving and departing by water is about

2,000,000 annually. About 6,600 steamers, from 9 to 26 feet draft, and 10,500 sailing vessels arrive and depart per year.

250. *The transportation terminals, Grand Trunk wharves.*—The first three wharves on the front harbor, together with the grain elevators, are used by regular lines of trans-oceanic carriers, by some tramp steamers, and by sailing vessels for discharging and receiving passengers and freight. The greater part of the passengers are inbound. They are examined on the wharves by customs and immigration officials in rooms provided for that purpose. Most of them continue their journey via the Grand Trunk Railway system. Trains to receive them are set at the head of the wharf. One thousand passengers can be disembarked and entrained in about one hour. Immigrants that are detained to be deported are held by and at the expense of the steamship company that brought them. If held for but a short time, they are quartered on the wharves in rooms furnished free by the railroad. If held for long periods, they are quartered in boarding houses.

251. There are no appliances on the wharves for unloading or loading vessels. All freight is transferred between ship and wharf by the ship's gear. Package freight is moved into the sheds or loaded on to cars by men and hand trucks. Pieces too heavy to handle in this way are moved by portable derrick cars after being placed on the wharf by the ship's gear. All the grain handled at this terminal is outbound. It is transferred from the elevators to the ship's hold by conveyers and spouts. Ore is received in box cars for transfer to water carriers. It is handled though the sheds from cars to vessels in wheelbarrows. During the greater part of the year, viz, May 1 to November 30, no regular lines of ocean steamers come to this terminal, and the ocean steamship wharves and elevators are practically out of commission and the working force is reduced to the smallest number sufficient to keep watch of the plant and keep it in order. The plant, however, is always available for use at any time when there is sufficient business to warrant putting it in operation. It is a common thing to handle tramp steamers during the summer months. The fourth wharf in the main harbor is used for general business in handling to and from vessels rough, heavy freight that is not injured by exposure to weather, such as iron and steel, lumber, piling, ties and ore. As this wharf has no appliances and requires no operating force, it is ready for use at all times. Freight is placed on the platform by the ship's gear and transferred to cars either by hand labor or by traveling cranes that move along the railroad tracks. At the coal-handling plant, which is in use throughout the year, coal, brimstone, sulphur, and similar bulk commodities are discharged from vessels through the coal pockets to cars. In handling the import and export traffic the regular lines of steamers are assigned to certain berths and sheds and are kept to the assigned places as much as possible.

252. Considered with a view to its use to full capacity throughout the entire year, this terminal is not used extensively. Portland is the winter port of the Grand Trunk Railway System, and during that season, about five months, the transoceanic terminal is used to its full capacity. During the rest of the year, except for handling an occasional tramp steamer, it is practically idle. The coal-handling plant is used extensively throughout the year.

253. During the five months, December 1, 1911, to April 30, 1912, 65 transoceanic steamers were discharged and loaded at this terminal, and 16,000 inbound passengers were received. The annual volume of freight traffic over all the wharves of this terminal is as follows:

	Short tons.	
Transoceanic:		
Received	357,260	
Forwarded	316,649	
		673,909
Domestic:		
Front harbor wharves	31,613	
Coal pockets	257,892	
		289,505
Total		963,414

254. *Portland Terminal Co. wharves.*—Wharves Nos. 1 and 2 are used by water carriers, principally schooners, to discharge and transfer to rail soft coal and sulphur, and Western Division Wharf is used to discharge soft coal for railroad use. Wharf No. 3 is used by water carriers, principally steamers, to discharge and transfer to rail pulp wood, china clay, wood pulp, and other paper-mill supplies, and by barges, schooners, and other vessels to transfer between rail and water copper ore, paving stones, sand, etc., and for the general transfer of various kinds of freight both ways between water and rail.

255. Wharves Nos. 1 and 2 are used to a large extent, being in operation almost constantly throughout the year. Western Division Wharf is operated only a part of the time, and to about one-third of its capacity. Wharf No. 3 is used to a considerable extent, but not nearly to full capacity, as shipment of some of the commodities handled over it is discontinued during the winter months. The channel to Wharf No. 3, as well as to Western Division Wharf is sometimes obstructed by ice. The annual volume of traffic handled over all the wharves of this terminal is as follows:

	Short tons.
Railroad coal	350,830
Commercial coal	421,488
Sulphur	49,177
Other commodities	156,343
Total	977,838

256. *Coastwise steamship wharves.*—Franklin Wharf, which has railroad tracks and the deepest water in this subgroup, is leased and used exclusively by the Eastern Steamship Corporation as a terminus for lines of ocean-going steamships plying between Portland, New York, Boston, Mass., Rockland, Me., and intervening points, and eastern Maine and St. John, New Brunswick. Customhouse Wharf is used by lines of small steamers that ply between Portland and points in the bays and along the coast as far east as Boothbay, Me.; by a line of freight steamers which touch at various points between Boston, Mass., and Machias, Me.; and by steamers of the United States Lighthouse Department. Portland Pier is used by the Island Ferry Co., which runs boats to several near-by points in the harbor and bay, and has exclusive use of the ferry slip; by boats of the United States War Department; by boats of the city of Portland; and by the public at a free public landing for small boats maintained by the city of Portland.

257. These terminals are used extensively. The annual volume of traffic is about as follows:

	Freight.	Passengers.
	Short tons.	
Franklin Wharf	496,000	700,000
Customhouse Wharf	20,000	800,000
Portland Pier	12,000	500,000
Total	528,000	2,000,000

258. *Coal and lumber terminals.*—These wharves are used by water carriers pricipally to deliver coal and lumber to the dealers occupying the wharves, and for transfer of these articles to wagons and railroad. A comparatively small amount of lumber is transferred from rail to water.

259. Two coal and three lumber wharves are used to a large extent. The rest are used to a small or moderate extent. The total annual traffic over all these wharves is about as follows:

	Short tons.
Coal	553,040
Lumber	78,090
Total	631,130

260. The manufactured terminals are used by water carriers to deliver freight, principally coal and raw materials, to the manufacturing establishments that occupy them. They are used periodically and to a small extent in comparison with their capacity. The annual traffic is about 88,000 short tons, of which about 90 per cent is clay and coal.

261. Marine construction terminals. One shipbuilding wharf is used in the construction, repair, and equipment of vessels, principally steam, in all the details except the construction of the bare hull. The other shipbuilding wharf is used for hauling out and generally repairing all kinds of vessels up to 220 feet in length, and 14 feet draft when light. The third wharf is used for dockage of pile drivers, lighters, etc., used in the construction of wharves and bridges.

262. The shipbuilding wharves are extensively used during the active season, but the railways are sometimes closed by ice in the winter. Their use can not be expressed in tons of freight. At the wharf which has the railways, about 300 vessels are repaired per year, of which about 150 are hauled out. The third wharf is little used.

263. *Oil terminals.*—These wharves are used by oil-carrying vessels to discharge oil to storage tanks on shore for local distribution and reshipment by rail, and to a comparatively small extent for the shipment of oil by vessels of the occupants to nearby points on the coast. Also empty oil barrels are received by rail and shipped by water. One of the oil wharves is used to a large extent and the other to a comparatively small extent. The aggregate annual traffic is about 45,000 short tons.

264. *The general business terminals* are used by water carriers to carry freight to and from the various business concerns occupying the wharves. Practically all the fish business of the port is done

on two of these wharves. To supply this market a fleet of about 370 vessels, large and small, call here, some regularly and some occasionally. Parts of three wharves are open to use by all vessels and do practically all the general wharfage and transfer business except that done at the railway and steamboat terminals. Twelve sailing packets, from 10 to 100 tons burden, do a general freight business between these wharves and points along the eastern coast of Maine. These wharves are extensively used, the total traffic being about 200,000 tons per year, of which about 15,000 tons is fish, and the rest general merchandise.

265. The following is a summary of the estimated annual freight and passenger traffic over the water terminals of Portland Harbor:

	Short tons.
Transportation terminals:	
Grand Trunk wharves	963,414
Portland Terminal Co. wharves	977,838
Coastwise steamship wharves	528,681
	2,469,933
Coal and lumber terminals	631,130
Manufacturing terminals	88,000
Marine-construction terminals (can not be stated in tons)	----------
Oil terminals	45,000
General business terminals	200,000
Total	3,434,063

Number of passengers arriving and departing by water, 2,000,000 per year.

GENERAL EFFICIENCY.

266. Considered as a waterway and as a refuge from storms, Portland Harbor is highly efficient, except that the deep-water anchorage ground has become somewhat inadequate in extent. This trouble will be remedied when the present approved project for improvement has been executed. The depth of improvement—30 feet at mean low water—is being closely approached by the draft of some of the larger carriers that use the port, and deeper water will probably be needed in the near future.

267. With the exception of the railroad terminals, all the wharves in the harbor are inefficient in that they have not a depth of water in the docks equal to that in the adjacent improved channel. A number of wharves are equipped with modern machinery for discharging coal or similar bulk commodities from vessels, whose cargoes can be reached through hatches and for transferring the same by machinery to storage pockets or railway cars. These wharves are highly efficient. The others, which are in the majority, are not fitted with modern appliances and could not efficiently accommodate a heavy traffic.

268. *Transportation terminals.—The Grand Trunk wharves* are in excellent condition and, as a whole, are highly efficient, except that in some ways the business has outgrown its capacity. The length of wharves are from 500 to 550 feet. A number of the ships that came here last season and are expected next season are from 515 to 600 feet in length, and project beyond the wharf from 25 to 75 feet, according to the berth they occupy. Thus the ship is in danger of damage from passing vessels and is at extra expense to discharge from her hatches beyond the ends of the freight sheds. The immigration business has outgrown its accommodations, in that the quarters

for detention are not adequate. The building in which immigrants are received and examined is in need of rebuilding, which work will probably be done within a year. When this is done the general facilities for passenger traffic will be improved and enlarged. The coal-handling plant connected with this terminal is of high efficiency.

269. *Portland Terminal Co. wharves.*—Three wharves of this group are fitted only for discharging bulk commodities, particularly coal, from vessels whose cargoes can be reached through hatches in the decks. At Wharves Nos. 1 and 2, such commodities can be transferred directly from vessels to rail carriers. These two wharves are highly efficient, but the third coal wharf does not have modern machinery and is of low efficiency. Wharf No. 3, for pulp wood and miscellaneous carload freight, is highly efficient.

270. *The coastwise steamship wharves* are not, as a whole, highly efficient. Customhouse Wharf and Portland Pier are fairly efficient for the class of traffic that passes over them. They are in excellent condition, have good roadways, and ample passenger and freight rooms. The amount of freight is small and is handled in small packages, there being practically no carload lots. It is moved to and from the wharves by wagons, and handled to and from the boats with hand trucks. Some of the boats are equipped with derrick booms, with which occasional heavy pieces are handled. Although a large volume of business is done over Franklin Wharf, it is not highly efficient. Freight is all moved by hand and on account of lack of space, the arrangement of freight houses and spur tracks is unsatisfactory. Freight is sometimes handled twice and sometimes carted in transferring between water and rail, although there are railroad tracks on the wharf.

271. *Coal and lumber wharves.*—Three coal wharves out of seven, and two lumber wharves out of six, have mechanical appliances for discharging and handling cargoes, and are highly efficient. The other eight wharves are moderately efficient.

272. *The manufacturing and marine construction and oil wharves* are not primarily general freight-handling terminals. They are well equipped for the special purposes to which they are put, and as a whole are highly efficient.

273. *The general business wharves* are not fitted with mechanical freight-handling appliances. The expense of installing such apparatus would probably not be warranted by the present volume of traffic. The wharves are in good condition, and meet present conditions efficiently.

WHETHER OPEN TO USE BY ALL VESSELS, AND TERMS AND CONDITIONS OF USE.

274. There are no wharves in Portland Harbor that are, by legal right, open to use by all vessels on equal terms. There are, however, an adequate number of wharves that are held by the owners or tenants, open to all. The supply exceeds the demand for such accommodation. There is no schedule of wharfage charges in common use by wharf owners. The different owners have separate schedules, but in many cases special terms are made as occasions arise.

275. *Transportation wharves.*—At the Grand Trunk terminal, the facilities are open to all on equal terms. No charge is made against the vessel itself for loading or discharging at these wharves.

276. An elevation charge of $0.009 per bushel is made on all grai going into the elevators. This includes 30 days' free storage, insur ance during the 30 days, and delivery to steamers.

277. With the exception of grain, all through freight—that is freight that is hauled over the Grand Trunk Railway system, whethe for a long or short distance, is subject to no charge for the use o terminal and transfer facilities at this terminal. The railroad get its compensation in the freight charges, which are fixed with the us of the terminal in view.

278. On all local freight, i. e., freight which is not hauled ove the Grand Trunk Railway system, with the exception of grain charges are made for wharfage, handling, and storage, according t the following schedule issued by the Grand Trunk Railway systen February 16, 1911:

PORTLAND, ME.—IMPORT AND EXPORT TRAFFIC.

[NOTE.—On import and export traffic, switched from or to Grand Trunk Railway sy tem wharves and connecting lines at Portland, Me., the following charges for wharfag and handling will be made in addition to switching charges.]

Governed by official classification.

1	2	R25	3	R26	4	5	6 classes.
2½	2½	2½	2½	2	2	2	2 cents per 100 pounds.

Exceptions.

Apples, for export, carloads, received from Portland shippers by team, 1 cen per 100 pounds, exclusive of handling.

Bleach and China clay, carloads, one-half cent per 100 pounds.

Hay (for feeding cattle while on steamers), carloads, 1 cent per 100 pounds exclusive of handling.

Commodities lower than sixth class, carloads, 2 cents per 100 pounds.

Live stock, carloads, 3 cents per 100 pounds.

Coal, ore, and sulphur, carloads, 10 cents per gross ton.

Salt, carloads, 25 cents per gross ton.

On import traffic handled overside to lighters the following charges will b made:

Governed by official classification.

1	2	R25	3	R26	4	5	6 classes.
1¼	1¼	1¼	1¼	1	1	1	1 cents per 100 pounds.

Exceptions.

Commodities lower than sixth class, carloads, 1 cent per 100 pounds.

Salt, carloads, 12½ cents per gross ton.

Handling.

Coal, discharging from vessel (through Grand Trunk Railway coal pockets) 20 cents per gross ton.

Brimstone, iron ore, and sulphur, discharging from vessel (through Gran Trunk Railway coal pockets), 25 cents per gross ton.

Clay (in bulk), handling from ship's side into cars, 15 cents per gross ton.

Storage.

If sulphur, brimstone, or potash salts are stored in steamship sheds, the fol lowing charges, which are in addition to the toll for discharging through coa pockets, will be assessed:

Switching to shed, $3 per car.

Unloading from steamship shed to car, 15 cents per gross ton.

Reloading from steamship shed to car, 15 cents per gross ton.
Switching from steamship shed to Boston & Maine Railroad transfer track, $3 per car.
Storage, 5 cents per gross ton for 30 days or fraction thereof.
When the above commodities are handled direct from vessel to shed the expense for delivery must be assumed by owners of the property. When the above commodities are delivered from shed to vessel the above charges, plus 10 cents per ton wharfage, will apply.

279. Compensation for the use of the terminal in handling passengers is received by the Grand Trunk Railway system in the price paid for through tickets over its own lines. Local ocean passengers, i. e., those that do not travel over the Grand Trunk Railway lines, pay nothing for the use of the terminal.

280. *The Portland Terminal Co. wharves*, with the exception of the Western Division Wharf, which is used only for railroad coal, are open to use on equal terms by all water carriers which interchange traffic with rail carriers via the tracks of the Portland Terminal Co., and to no others, because it is arranged to handle freight to and from water carriers only by rail. That is, it is particularly a terminal for through traffic, although local freight in carload lots can be trans-shipped here.

281. The rates charged by the Portland Terminal Co. for transferring different commodities between water and rail, when the work is done by the Portland Terminal Co., are as follows:

	Per long ton.
Coal	$0.20
Sulphur	.25
Copper ore	.25

The work of transferring other commodities at the terminal is generally done by the owners of the goods or parties employed by them. In such cases no charge is made for wharfage or dockage. In short, except when the terminal company actually does the work of transfer between water and rail, no charge is made for the use of the wharves of this terminal.

282. *The coastwise steamship wharves* are leased for use by certain vessels or lines of vessels, and as a rule are open to no others. Franklin Wharf and Portland Pier are fully occupied. A small part of the latter is maintained by the city of Portland as a free public landing, but it is suitable only for use by small boats. Some space remains unoccupied on customhouse wharf which is available for use by arrangement with the owners. The terms between owners of these wharves and the occupants are private.

283. *The coal and lumber wharves* are open without charge to use by all vessels doing business with the occupants. Parts of two of them are open, on private terms, to use by all vessels.

284. *The manufacturing, marine construction, and oil terminals* are open to use only by vessels doing business with the occupants. The use of the manufacturing and oil wharves is free to such vessels. Terms for the use of the marine construction wharves are subject to agreement between the parties concerned.

285. *General business wharves.*—Parts of three of these wharves are open to use by all vessels on equal terms, and one has a railroad track arranged for convenient transfer between water and rail carriers. Other parts of the wharves are open only to vessels doing business with the occupants.

286. Those parts of the wharves occupied by business concerns ar free to vessels doing business with the occupants. The followin wharfage charges are made at the open parts of the wharves.

287. Freight in bulk, 15 to 20 cents per ton; barrels, 2 and 3 cents each bags, 2 cents each; boxes one-fourth cent each; hogsheads, 10 cents each; grai in carloads, single car, $2; several cars in one lot, per car, $1.50; laying up ve sels, 25 cents per 100 tons per day.

These rates may be taken as representative for general wharfag business except at the railway and steamboat terminals.

288. (*b*) The city of Portland is served by three railroads, vi Boston & Maine Railroad to the west and south, through Boston Mass.; Maine Central Railroad, one branch of which goes to norther and eastern Maine and the Canadian Provinces, and one to the nort and west through Montreal, Canada; and the Grand Trunk Railwa System to northern and western United States and Canada throug Montreal, Canada. The terminal facilities of the Boston & Main and Maine Central Railroads are held and operated by the Portlan Terminal Co., a subsidiary to the two railroads.

289. A belt line railway passes along the entire front harbor an Fore River shores of the peninsula and along the commerciall available shore of Back Cove, giving connection with all the railroad serving the municipality. The belt line is not controlled by an one organization, but is made up of parts of the different railroads Arrangements are in force by which cars from any railroad can b delivered to any part of the belt line.

290. Of the 31 wharves along the Portland shore of the fron harbor and Fore River 24 have physical connection with the railroa by means of spur tracks and the remaining 7 can readily be pro vided with such connections should circumstances require it. Thre of the nine wharves on the south Portland shore of the fron harbor and Fore River have physical connection with the railroad These are on Fore River. The other six have no such connectio and are not within practicable connecting distance of any railroad All six wharves on Back Cove have physical railway connection

291. *Transportation terminals.*—The Grand Trunk wharves a have direct physical connection with the Grand Trunk Railway Sys tem by means of spur tracks on the wharves. This connection i made entirely on the Grand Trunk property. Of the four wharve on the front harbor, each has four tracks, except Galt wharf whic has two. There are no appliances at these four wharves for discharg ing freight from ships. It is transferred from ship to wharf by th ship's gear. On the wharf pieces that are light enough are handle and loaded onto cars or wagons by men with trucks. Heavy piece are handled and loaded by portable cranes that travel on the railroa tracks.

At the coal wharf there are tracks under the pockets and ad quate sidings for the storage of cars. There is modern machiner for removing coal, sulphur, ore, or similar bulk freight from th vessel and transferring it to pockets, from which it is loaded on t cars by gravity.

(*b*) Physical connection between water terminals and railroads.

292. Physical connection between the Grand Trunk wharves and the other railroads serving this territory is had by means of the belt line railway previously mentioned.

293. The Portland Terminal Co. wharves all have physical connection with all the railroads serving the municipality, by means of spur tracks on the wharves and the belt line railway.

294. Of the coastwise steamship wharves, Franklin Wharf, used by the Eastern Steamship Corporation, has physical connection with the railroads. The other two have not, but can practicably be connected if circumstances require it.

295. The coal and lumber, manufacturing, marine construction, and oil terminals include 23 wharves. Sixteen of these have physical connection with the railroads and facilities for transfer between water and rail carriers, and 7 have no railroad connection. Three of the 7 are adjacent to the railroad and 4 are not within practicable connecting distance.

296. *General business terminals.*—Four of these wharves have physical connection with all the railroads. The remaining two have no spur tracks, but are within easy connecting distance of the railroad.

INTERCHANGE OF TRAFFIC BY PRORATING.

297. *Transportation terminals—Grand Trunk wharves.*—Transoceanic traffic, both passenger and freight, which is carried for part of its journey over the lines of the Grand Trunk Railway system is interchanged between water and rail carriers at this terminal on through tickets and bills of lading. This is the result of an understanding or agreement between the Grand Trunk and the steamship lines. There is no contract between them as to the rates that each shall charge, but each carrier fixes the through rates by adding to its own charges the known rates of the other carrier at the time in question. The railroad rates are practically constant, as they can not be changed without notice to the Interstate Commerce Commission. The ocean rates on some commodities, such as grain, hay, live stock, and apples, change according to the demand.

298. This interchange of traffic at the Grand Trunk wharves on through tickets and bills of lading is made only with the Grand Trunk Railway system. Ocean traffic originating with or destined to other roads, or originating in or destined to Portland, is called local, and is rebilled at Portland by both rail and water carriers. The Grand Trunk receives compensation for the passage of this freight through its terminal by means of wharfage, handling, and storage charges, made according to the schedule previously given, in addition to switching charges made for moving cars to and from the wharves. Ocean passengers originating with or destined to other roads are treated the same as those originating in or destined to Portland, and are ticketed only from and to Portland by the ocean carriers.

299. *Coastwise steamship terminals.*—The Eastern Steamship Corporation, operating over Franklin Wharf, has agreements for interchange of traffic by prorating, as follows: With Grand Trunk Railway system between New York, Boston, eastern Maine and New Brunswick, and all points on the Grand Trunk lines; with the Boston & Maine Railroad between Boston and New York and all points

on the Worcester, Nashua & Portland division of the Boston & Main and between New York and points on the Boston & Maine mai line as far west as North Berwick, Me.; with the Maine Central Rail road between Boston and New York, and all points on the Main Central lines, except that on traffic to and from Boston, the Bosto & Maine Railroad is favored as much as practicable.

300. The transportation lines using the other two wharves hav no agreement with any of the railroads serving Portland for inte change of freight by prorating. Passengers are ticketed through b the railroads to points on the Casco Bay and Harpswell lines, bu that company does not issue joint tickets from points on its lines t railroad points. The Casco Bay and Harpswell lines have agre ment with the express companies by which express matter is inte changed between its lines and the railroads.

301. *Portland Terminal Co. wharves.*—No contract exists betwee any water carriers and any railroad or railroads for interchange o traffic at this terminal by prorating.

302. *Coal and lumber, manufacturing, marine construction, oi and general business terminals.*—There is no contract between an water carriers and any railroads for interchange of traffic over th wharves of these terminals by prorating.

303. In short, interchange of traffic between water and rail ca riers is practiced in Portland only at the ocean and coastwise stean ship wharves.

304. (*c*) The streets of Portland that are subjected to the heavie traffic are, as a rule, built to fairly easy grades and improved b durable pavements. Those of South Portland are not, as a rul paved, but are well graded and adequate to accommodate the existin traffic.

305. Of the 31 wharves on the Portland shore of the front harb and Fore River, 25 have connection with an adequate and improve marginal highway, which lies along the shore. Six have no highwa connection, five being railroad wharves and one a marine-constructio wharf, to none of which such connection is essential. The five railroa wharves are, however, within convenient distance of highways, bu the marine-construction wharf is not well situated for highway co nection.

306. Eight of the nine wharves on the south Portland shore ha connection with the public highways. The three with railway co nections are included in this number. One has no highway conne tion. The highways to the south Portland wharves are not high improved, but adequately accommodate existing traffic.

307. One of the six wharves on the shores of Back Cove has highway connection, being a railroad coal wharf to which such co nection is not essential. The other five have connection with adequa and improved highways.

SACO RIVER, ME.

308. (*a*) *Location.*—The navigable portion of the Saco River about 5 miles in length, and forms the approach to, and the harbor

(*a*) General location and description.
(*c*) Connection with highways.

the cities of Biddeford on the west side and Saco on the east side of the river at the head of navigation. The channel has a least depth of 7 feet at mean low water to the head of navigation, and the mean range of tide is 8.8 feet. During the winter months the river is generally closed to navigation by ice.

309. *Description.*—The water terminal consists of eight wharves, located at the head of navigation in the cities of Biddeford and Saco. The wharves are all solid fills, four on the Biddeford side being retained by granite walls, and four on the Saco side by timber cribs. The depths of water at the wharves range from 5 to 15 feet at mean low water. Two of the wharves are unfit for use by vessels, because the river bottom in front of them is rock, making the berths unsafe. Two others are in poor condition and are practically abandoned. The other four are in good condition and are regularly used.

310. There are no accessories except sheds suitable for the storage of coal, together with shears and power for hoisting and elevated runways for distribution in the sheds. Coal is shoveled into buckets in the holds of vessels and wheeled in barrows on the runways There is one hand-power derrick for heavy pieces. The wharves and water front near the business sections are all privately owned, mostly by manufacturing and power companies, except one street end in Biddeford, to which the city has a somewhat doubtful title. There is plenty of undeveloped water front, and no danger of monopoly of terminal facilities.

311. *Method of use.*—The principal use of the wharves made by water carriers is the delivery of coal to dealers and manufacturing concerns. A small amount of hay, grain, and general merchandise is also discharged, and some granite shipments, irregular as to time and quantity, are made.

312. *Extent of use.*—This terminal is used only to a moderate extent, the total annual traffic being about 62,000 short tons, of which all but about 2,000 short tons is coal.

313. *Efficiency.*—The efficiency of the terminal is low, but the volume of traffic is not great enough to warrant the installation of modern mechanical means for handling and storing freight.

314. *Whether open to use by all vessels.*—Practically all the traffic is handled at three wharves on which the space is reserved for the exclusive use of owners or tenants. These wharves are open to use on equal terms by all vessels doing business with owners or tenants. Occasional cargoes to other parties are sometimes handled by special arrangement. One wharf is open to all vessels on equal terms. On the east side of the river a free public landing for small boats is maintained by the city of Saco.

315. *Terms and conditions of use.*—At one wharf the tenants pay the owner $0.16 per ton wharfage on freight handled over the wharf. At the public wharf the terms are $0.12 per ton wharfage on freight handled over the wharf.

316. (*b*) There are no physical connections between any of the water terminals in the cities of Biddeford and Saco, and any railroad or railroads. These cities are served by the Boston & Maine Railroad, which is not conveniently situated for connection with the water

(b) Physical connection between water terminals and railroads.

front. No traffic over the wharves is interchanged between wate and rail carriers under any agreement for prorating. At the moutl of the river a small pier owned by the Boston & Maine Railroad ha railroad connections and is used for the transfer of a small amoun of summer passenger business.

317. (*c*) Each water terminal has connection with such highway as exist in the vicinity, which, as a rule, are not highly improved bu are adequate to accommodate the existing traffic.

KENNEBUNK RIVER, ME.

318. (*a*) *Location.*—The Kennebunk River flows in a southeasterl direction and enters the Atlantic Ocean about 25 miles west of Port land, Me. It is spanned by a drawbridge about 1 mile above it mouth. Only that portion of the river below the drawbridge is navi gable for ocean-going vessels. All the commercial water terminal except one are located in the first one-fourth mile of river below th bridge. One commercial terminal is located on the east side near th mouth, and some pleasure boat terminals lie a little farther upstream

319. *Description.*—The navigable part of the Kennebunk Rive forms part of the boundary between the towns of Kennebunkport o the east and Kennebunk on the west side. These towns are importan summer resorts, the residents depending largely upon the busines they do with the summer population.

320. In its natural condition the Kennebunk River was obstructe by a bar at the mouth, and by shoals of earth and rock in that portio below the bridge, and afforded no adequate anchorage ground. Im provement was begun in 1798. The first works were two jetties acros the bar at the mouth to concentrate the flow and scour out a channe As there was no anchorage ground, a pier or wharf was built on th easterly side near the mouth to provide a place for vessels to lie i safety during periods of unfavorable weather or tide, or while wait ing to go upstream. It has also been the custom for vessels to dis charge cargoes at this pier. These works have been renewed and r paired from time to time and are still maintained, but not in the orig inal forms. In 1877–1880 a small amount of dredging and rock exc vation was done, and a channel 4 feet deep at mean low water w obtained from the mouth up to the drawbridge. The mean range o tide is 9 feet, making a depth of 13 feet available for high-water nav gation. The latest improvement is a jetty with a training wall bui in 1891–92 on the east side, about one-fourth mile above the moutl for the purpose of contracting the waterway so as to scour out th channel across a shoal at that place. It is stated by those navigatin the river that the dredged channel has become shoaled, so that th present available depth is not more than 10½ feet at mean high wat Above the bridge the river is navigable for 3½ miles at high tide, b only by small boats. At present it is of no commercial importance.

321. On the east side there are four wharves near the bridge th were built for commercial use. They are generally of timber c

(*a*) General location and description.
(*c*) Connection with highways.

construction and in good condition, and have from 4 to 6 feet of water at the pier ends at mean low water. The wharf nearest the bridge is owned and occupied by a coal concern. It has storage sheds, shears for hoisting, and elevated runways for wheeling from vessel to sheds. In summer it has a float stage for a small boat landing. The other three wharves have no accessories for handling freight or passengers and are unoccupied. About three-fourths of a mile below the bridge, on the east side, is the landing stage of the local yacht club, and immediately below this is the pier owned by the United States. The latter is built partly of timber crib, ballasted and partly fill faced with granite walls. It is about 300 feet long, lies along the bank of the river, and has no accessories. It is at present leased to local parties. On the west side, near the bridge, are three terminals of about the same characteristics as those on the east side. The upper is occupied by the Boston & Maine Railroad, the next by a local electric power plant, and the third is unoccupied. They are all in fairly good condition, but have no appliances for handling traffic. Next below the third wharf is a shipyard and marine railway for construction and repair of wooden vessels. Three-fourths of a mile below the bridge on the west side is the private landing of a summer resident. It has a floating stage, and the berth and approaches have been dredged to about 6 feet at mean low water.

322. *Method of use.*—There are no lines of vessels of any kind, either passenger or freight, that make regular trips on the Kennebunk River. The only terminals that are used regularly for commercial purposes are the coal wharf, for the delivery of coal, and the shipyard for the repair and construction of wooden vessels. The lower wharf on the west side is used to handle an occasional lot of miscellaneous freight. Three wharves on the east side, and the railroad and power station wharves on the west side, are not used by vessels. The river is used for pleasure by small boats and yachts which land at the private wharf, the yacht club, the coal wharf, and the Government pier.

323. *Extent of use.*—The terminals are used commercially to a very small extent. The annual traffic is about 3,000 short tons, chiefly coal. There is an occasional cargo of lumber received for use in the shipyard, and some fishing vessels bring in their fares for local use and for shipment by rail to other markets. The use of the pleasure-boat terminals is large during the summer season, the river being navigated extensively by the small boats and yachts of the local summer residents, by those from other near-by summer resorts, and by some that are cruising along the coast. This use is an important source of business to the locality.

324. *General efficiency.*—Considering the depth of water available in the main channel, and the small amount of traffic, the Kennebunk River terminals may be considered fairly efficient. The river channel is not efficient because it is too shoal to permit the use of vessels of economical size.

325. (*b*) A branch of the Boston & Maine Railroad extends for a short distance along the west bank of the river just below the draw-

(b) Physical connection between water terminals and railroads.

bridge. There is no physical connection between the railroad and any water terminals, but spur tracks could practicably be extended to the railroad terminal and the adjacent wharf if needed. There is no contract between any water carriers and any railroad or railroads for the interchange of traffic at Kennebunk River points by prorating.

326. (*c*) There are public highways within convenient distance of the river with which all the wharves have connection. Neither highways nor connections are highly improved, but they are adequate to the present demands.

YORK HARBOR, ME.

327. (*a*) *Location.*—The town of York is on the coast southwestwardly from Portland, Me. York River is in the southwesterly part of the town, flows in a southeasterly direction, and enters the sea about 48 miles by water from Portland Harbor. The lower part of the river for about 3 miles up from the sea is called York Harbor. The principal wharves are all on the northeasterly side of the harbor.

328. *Description.*—York River does not have a large fresh-water flow, but is a tidal estuary. It is naturally of good depth. There is a slight bar at the mouth, with a depth of 18 feet at mean low water. For about 3 miles above the mouth the depth varies from 10 to 20 feet at mean low water. The channel was originally crooked and difficult to navigate. The Federal Government has completed two projects for improvement by which portions of several obstructing points and shoals were removed by dredging to the depth of 10 feet at mean low water, thus widening and straightening the channel. The mean range of tide is 8.7 feet. The navigable part of the river is spanned by three bridges, viz, one highway and one railway bridge close together, about 1¼ miles above the mouth, and one highway bridge about 2 miles above the mouth. Each has a draw span for the passage of vessels.

329. There are eight terminals for commercial use at York Harbor, all on the northeasterly side of the river, and all in good condition. Most of them are very old timber cribs with solid fills, extended by wooden platforms on pile foundations. One newer wharf is entirely a pile structure. Two wharves are equipped with shears, steam hoisters, elevated runways, and storage sheds, suitable for discharging coal or other similar bulk commodities. One has a float stage for a landing place for small boats. The others have no accessories. The depths of water at the wharves range from 10 to 16 feet at mean low water. These wharves occupy only a small proportion of the available water front, and there is plenty of room for expansion, and no danger of monopoly of terminal facilities.

330. *Method of use by vessels.*—The town of York has a permanent population of about 2,700. It is essentially a farming country, but has recently become popular as a summer resort, and is now said to have a summer population of about 20,000. The principal business is to meet the demands of the summer residents. There are two active brickyards, and some farm products are raised for other markets.

(*a*) General location and description.
(*c*) Connection with highways.

331. Two wharves are occupied by coal dealers, and are used principally to discharge coal to the occupants. Two are parts of brick-manufacturing plants and are used for the shipment of bricks, and to discharge coal for use in burning bricks. Coal is brought in small schooners or barges, which are towed to and from the wharves. At the coal wharves coal is shoveled into buckets, hoisted by steam power, and wheeled in barrows to the storage piles. Bricks are shipped in barges. They are handled by hand, and wheeled from the kilns to the barges on barrows. Two wharves are occupied by fish concerns, and are used by fishing boats to discharge fish and lobsters for local use and for shipment by electric and steam railway to other markets. One wharf is part of the equipment of a large summer hotel. It is used principally as a landing place for pleasure boats, including cruising yachts, and local small boats and canoes. One wharf has recently been rebuilt by the owner to be used as a small boat landing and for general wharfage purposes.

332. *Extent of use by vessels.*—There are no lines of vessels of any kind, either passenger or freight, that operate regularly upon York Harbor. The principal traffic is in coal received and bricks shipped, the annual quantities being about as follows:

	Short tons.
Coal	6,200
Bricks	13,800
Total	20,000

In addition there are small shipments of farm products, such as apples, hay and straw, and small receipts of general merchandise, flour, grain, lumber, salt, and fish, the amount of which could not be ascertained.

333. *General efficiency.*—The wharves at York Harbor are as a rule in good condition and are capable of efficiently accommodating the existing traffic, which is too small to warrant more extensive installation of mechanical freight-handling appliances.

334. *Whether open to use by all vessels.*—There are no public wharves in York Harbor, and none that are by legal right open to use by all vessels upon equal terms. There are several, however, that are held so by consent of the owners, viz: Two fish wharves, one coal wharf, one general business wharf, and one summer hotel wharf. One coal wharf is fully occupied by the coal plant, and the brickyard wharves are too far up the harbor to be available for general business.

335. *Terms and conditions of use.*—There is no common schedule of wharfage charges in use, there being no great demand for use of wharves. Reasonable terms can be made with the various owners as occasions arise. There is no charge on fish or other commodities that are handled by the owners or occupants of the wharves where they are discharged or shipped. The use of the summer hotel wharf is free.

336. (*b*) York Harbor is served by the York Harbor & Beach Railroad, a steam road connecting with and operated by the Boston & Maine Railroad, and by the Atlantic Shore Railway, an electric street railroad operating along the shore between Portsmouth, N. H.,

(b) Physical connection between water terminals and railroads.

and Biddeford, Me., and doing passenger, freight, and express business. There is no physical connection between the water terminals and the railroads. The steam road is not conveniently located for connection with the water front. The electric road is within practicable connecting distance of all the water terminals except the brickyard wharves. A small amount of traffic is transferred between water and rail carriers by means of carts.

337. *Prorating.*—There is no contract between any water carriers and any railroad or railroads for interchange of traffic at York Harbor by prorating.

338. (*c*) The public highways of York Harbor are not highly improved, but are good country roads. The wharves all have convenient connections with the highways, adequate to the present traffic.

ISLES OF SHOALS, ME. AND N. H. (GOSPORT HARBOR).

339. (*a*) *Location.*—The Isles of Shoals are a group of small islands situated about 6 miles southeast of Portsmouth Harbor, N. H. Five of these islands lie in such a way as to partly inclose and shelter an area of water which is called Gosport Harbor. The only water terminal facilities are comprised in one wharf on Star Island on the southerly side of the harbor.

340. *Description.*—Gosport Harbor takes its name from the village of Gosport, on Star Island, on the south side of the harbor. It is a small harbor, having an area of about 35 acres, of which about 30 acres are from 18 to 50 feet deep at mean low water. The mean range of tide is 8.6 feet. In its natural state it was open to the northwest, but somewhat protected from other quarters by the surrounding islands. Several projects for improvement by building breakwaters across the openings between four of the surrounding islands have been adopted. Two breakwaters have been completed, and the third and last is under construction and will probably be completed within a few months. The harbor will then be perfectly sheltered from all points except those from west to northwest. Although the distance between the islands and the mainland is small, winds from this quarter sometimes produce such a sea that the harbor is untenable. Storms of such severity from the northwest are generally short and infrequent, so that practically the harbor will afford good shelter all the time. The wharf is built of stone, and is provided with freight and passenger shelters, and in summer with a float stage as a landing place for small boats. All are in good condition. The water at the end of the wharf is 18 feet or more deep at mean low tide.

341. *Method of use by vessels.*—The Isles of Shoals are a summer resort, having two hotels in operation during the season. In addition there is a small permanent population, whose principal business is fishing. The harbor and wharf are used as a passenger and freight terminal by a steamboat that plies between Isles of Shoals and Portsmouth N. H. They are also used by the private boats of the inhabitants and visitors, both summer and winter. The principal use of the harbor by water carriers is as a harbor of refuge by fisher-

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(*a*) General location and description.
(*c*) Connection with highways.

men, small coasting vessels, and yachts. In this respect it is very important, as vessels often get shelter here when unable to reach Portsmouth. It is the only harbor of easy entrance between Sandy Bay, Mass., and Portland, Me., a distance of over 50 miles.

342. *Extent of use by vessels.*—The passenger steamer makes three trips daily each way between Portsmouth and Gosport Harbor during the summer season. A small steamer runs between Gosport and the other islands. The passenger traffic handled by these two steamers over the Gosport wharf amounts to at least 20,000 per year. In addition to this there is the traffic by private boats. The annual tonnage is estimated as follows:

	Short tons.
Ice	500
Coal	500
Fish	700
Provisions	730
General merchandise	800
Total	3,230

It is estimated by the keeper of the Isles of Shoals Lighthouse that 370 small vessels find refuge in Gosport Harbor per year.

343. *General efficiency.*—There are no mechanical appliances for handling freight at Gosport Harbor and none are needed. The terminal is efficient to meet the demands upon it.

344. (*b*) There is no physical connection between any Isles of Shoals terminals and any railroad, and no contract between any water carriers and any railroad or railroads for interchange of traffic at Isles of Shoals by prorating.

345. (*c*) There are no highways of any importance at Gosport, but such as exist have connection with the wharf.

PORTSMOUTH HARBOR, N. H. AND ME.

346. (*a*) *Location.*—Portsmouth, N. H., is on the west side of the Piscataqua River, about 57 miles west of Portland and 4½ miles from the sea. The lower part of the river finds its way to the sea through three channels, forming several large islands. The middle channel is deepest and widest, and that part of it extending from the drawbridge at Portsmouth, 4½ miles to the sea, forms Portsmouth Harbor. It lies between Portsmouth and New Castle, N. H., on the west, and Kittery, Me., on the east. The harbor is very deep, generally more than 50 feet at mean low water, and subject to swift tidal currents. The anchorage grounds are about 3 miles below Portsmouth and 1½ miles above the mouth of the river, and consist of a stretch of river about 1 mile long and one-half mile wide, 48 to 70 feet deep at mean low water, and Pepperells Cove on the east side that is being dredged to the depth of 12 feet at mean low water. The mean range of tide is 8.7 feet at the mouth of the river and 7.8 feet at the upper end of the harbor.

347. There are 32 terminals, each including one or more wharves, on the Portsmouth and Kittery shores of Portsmouth Harbor.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Twenty-six of these are in Portsmouth, 20 being on the shore extending from the drawbridge down river about 1 mile, and 4 being on a small cove, and 2 on the main river above the drawbridge. Six are in Kittery, the upper one being about 1 mile and the lower one about 3 miles below the drawbridge. In these six is included the United States navy yard at Portsmouth, N. H., which is located on an island about 1 mile long and one-half mile wide in the town of Kittery, Me., about 1½ miles below the drawbridge.

348. *Description.*—The most prevalent type of wharf is the wooden platform supported on piles, but there are a number of solid fills supported by timber cribs or masonry walls. The depths of water at the various wharves vary from zero to 50 feet at mean low tide. Fourteen terminals have 15 or more feet and 9 have 20 or more feet at mean low water. Four terminals have machinery for unloading coal from vessels, one for discharging lumber, and the navy yard has a dry dock of size sufficient for the largest war vessel of this country, with tramways, derricks, shears, and traveling cranes of capacity from 15 to 100 tons.

349. Of the 32 terminals 5 are owned by the public. One in Portsmouth and 1 in Kittery are owned by the respective municipalities, and are reserved for free public use. Two in Portsmouth are owned by that city and leased for the exclusive use of the tenants. One, the navy yard, is used only by the United States. The remaining 27 are privately owned and occupied.

350. *Method of use by vessels.*—The terminals are used by water carriers almost wholly to discharge cargoes consigned to the tenants of the wharves. There is very little outward freight business. Some are used as passenger terminals by local ferry and steamboat lines and for laying up towboats. One is used for the transfer of coal from water to rail transportation.

351. *Extent of use by vessels.*—Considered collectively and in comparison with their capacity the terminals of Portsmouth Harbor are used to a small extent. The total annual freight traffic is about 700,000 short tons. Of this about 647,000 short tons is coal that is handled at nine terminals. About 80 per cent of the coal is handled at two of these wharves. The annual passenger traffic is about 1,600,000, which is handled at five terminals, of which two handle about 90 per cent. One lumber terminal handles about 10,000,000 feet b. m. annually. Nine wharves have a very small traffic of general freight and the remaining eight are practically idle.

352. *Efficiency.*—Two coal-handling plants, one lumber wharf, and the navy-yard terminals and two passenger wharves are highly efficient. Three other coal wharves are fairly efficient. The other 23 wharves, except the coal wharves, have no appliances for handling freight, most of them are in poor condition, and, on the whole, their efficiency is very low.

353. *Whether open to use by all vessels.*—One very efficient coal-handling plant is open to all water carriers on equal terms. The city of Portsmouth and town of Kittery each maintains a free public wharf suitable to accommodate small boats and light-draft vessels with cargoes that do not need to be stored under cover. There are six other privately owned wharves suitable for general freight that

are open to all vessels. Of the remaining 23 one is unfit for use, and the others are used only by vessels doing business with the owner or tenants, except by special arrangement.

354. *Terms and conditions of use.*—Two coal-handling plants have definite terms, viz, $0.20 per long ton for discharging and loading onto cars and $0.03 per long ton for weighing. Some wharves charge $1 per day for dockage of vessels when the time is short, or $25 to $30 for laying up for the winter. Charges for wharfage are generally subject to special agreement. Vessels that trade with the occupants of the wharves are generally allowed free use of the wharves at which they trade.

355. (*b*) On the Portsmouth side 2 lumber wharves, 1 general wharf, and 2 coal wharves have physical connection with the Boston & Maine Railroad, the only road that serves the locality. There is no marginal railway along the Portsmouth water front, and the other wharves can be connected with the railroad only at great expense. On the Kittery side there is no marginal railway, the navy yard being the only terminal having railway connection. In short, only 6 out of 32 terminals have railway connection.

356. *Prorating.*—Tickets are sold by the railroad to the Isles of Shoals via the Isles of Shoals Steamship Co., but there is no other contract between any water carriers operating upon Portsmouth Harbor and any railroad for interchange of traffic at that port by prorating.

357. (*c*) One coal terminal that is used exclusively to transfer coal from water to rail carriers has no highway connection because such connection is not essential. All the other wharves are connected with highways that are adequate for the present business but not generally highly improved. Three wharves in Portmouth border upon paved streets. Access to the others, both in Portsmouth and Kittery, is had by means of unpaved streets, some of which are rather steep and rough.

EXETER RIVER, N. H.

358. (*a*) *Location.*—Exeter River is part of the Piscataqua River system of navigable waters, which includes Piscataqua River, Great Bay, Exeter River, Lamprey River, Bellamy River, and Cocheco River. The Piscataqua River flows in a general southerly direction, forms part of the boundary between New Hampshire and Maine, and enters the Atlantic Ocean through Portsmouth (N. H.) Harbor. Great Bay is a tidal estuary about 8 miles long with an average width of perhaps 1½ miles. It lies on the westerly side of the Piscataqua River, extends in a general northeasterly direction, and enters the Piscataqua through a comparatively narrow mouth about 4 miles above Portsmouth. The Exeter flows in a general northeasterly direction, and enters Great Bay at its extreme southwestern end. The head of navigation of the river is at the city of Exeter, about 8 miles from Great Bay and about 20 miles by water from Ports-

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

mouth. There are four water terminals in the city of Exeter at or near the head of navigation, three on the north and one on the south side. At Newfields, 4 miles below Exeter, there is one wharf on the north side of the river.

359. *Description.*—The channel of the Piscataqua River and Great Bay are naturally of ample depth, and have not been dredged. The channel of the Exeter River has recently been improved by dredging, so that now it has a least depth of 5 feet at mean low water in the vicinity of Exeter and 6 feet at mean low water farther down the river. The mean range of tide is 6 feet. The river is generally closed to navigation on account of ice during four or five months each year.

360. The wharves are all solid fills faced with stone walls. At Exeter the depths alongside the wharves range from 0 to 5 feet at mean low water. At the Newfields Wharf the depth is 5 feet at mean low water. Two wharves at Exeter have shears with steam power for hoisting coal, together with coal sheds and elevated runways for wheeling from vessel to shed or pile. The other two terminals at Exeter have no accessories. The wharf at Newfields has shears for hoisting and elevated runways for transferring to the shore, but no stationary power plant. Owing to the substantial manner of construction, the wharves are generally in good condition. One wharf at Exeter is owned and occupied by a manufacturing concern, one by a coal dealer, and two are vacant and are put to no regular use. The one at Newfields is owned and occupied by a manufacturing concern.

361. *Method of use by vessels.*—There are no lines of vessels of any kind, either passenger or freight, that ply regularly on the Exeter River. Two wharves at Exeter are used by water carriers principally to deliver coal to the occupants. A small amount of lumber, cordwood, and fish is also handled. The greater part of the coal is brought in ocean-going vessels to Portsmouth. Here it is rehandled and loaded on barges drawing about 6½ feet of water, which are towed to Exeter. A comparatively small amount of coal is handled in small schooners of 9 to 10 feet draft. Six drawbridges are passed on this trip, viz, one railway and one highway bridge at the head of Portsmouth Harbor and the same at the entrance to Great Bay, one railway bridge at the mouth of the Exeter, and one highway bridge about 1 mile above the mouth. At the wharves coal is shoveled into tubs, hoisted, and wheeled in barrows to storage piles. Other materials are transferred between vessel and wharf by hand. The two other wharves at Exeter and the one at Newfields are used only occasionally to handle small quantities of miscellaneous freight.

362. *Extent of use by vessels.*—The Exeter River terminals are used only to a small extent in comparison with their capacity. The annual volume of traffic is estimated to be as follows:

	Short tons.
Coal	21,320
Miscellaneous freight	500
Total	21,820

363. *General efficiency.*—Considering the small depth of the main channel and consequent small size of the vessels that must be used

and the small amount of traffic, the Exeter River water terminals may be considered highly efficient.

364. *Whether open to all vessels.*—There are no water terminals on the Exeter River that are by legal right open to all vessels on equal terms. There are, however, privately-owned wharves that are but little used and that are open by arrangement with the owners. There are no wharves owned by the public, but the city of Exeter owns about 250 feet of water front that is available for terminal purposes, if needed.

365. *Terms and conditions of use.*—No regular schedule of wharfage charges is in use, probably because there is but little demand for wharfage. Special terms are made as occasions arise.

366. (*b*) The Boston & Maine Railroad practically parallels the Exeter River on the westerly side, but does not approach it nearer than one-fourth of a mile, and is generally 40 or 50 feet higher than the river. None of the Exeter River water terminals have physical connection with any railroad and there is no contract between any water carriers and any railroad or railroads for interchange of traffic at Exeter River points by prorating.

367. (*c*) The city of Exeter is an enterprising manufacturing town of about 5,000 population. It is one of the two county seats of Rockingham County, N. H., and Exeter Academy, a well-known preparatory school for boys, is located here. Its highways, as a rule, are excellent. Newfields is a manufacturing village of about 500 population, and its highways are adequate to the demands upon them. All the Exeter River water terminals have connection with the public highways. Generally the connecting roadways are private ways, and are sometimes steep and not highly improved, but they are adequate to the demands of existing traffic.

LAMPREY RIVER, N. H.

368. (*a*) *Location.*—The Lamprey River is part of the Piscataqua River system of navigable waters. (See Exeter River report.) It flows in a general southeasterly direction and enters the westerly side of Great Bay about 1 mile from its southwestern extremity. The head of navigation of the Lamprey is at the village of Newmarket, N. H., about 2½ miles from Great Bay and about 13½ miles by water from Portsmouth, N. H. The water terminals are all located at Newmarket on the westerly side of the river, at or near the head of navigation.

369. *Description.*—Up to within about 1 mile of the head of navigation the channel was naturally 6 feet or more deep at mean low water. For about a mile below the head of navigation it was naturally obstructed by shoals, but has been improved by dredging and rock excavation so as to afford a depth of about 4½ feet at mean low water to the head of navigation. The mean range of tide at Newmarket is 6.6 feet. The river is closed to navigation four to five months each year by ice.

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.

370. There are four wharves at Newmarket, all solid fills, faced with stone walls. The river being narrow the wharves do not project into the stream, but are practically retaining walls built along the river bank, filled behind with earth. One wharf is for part of its length faced with a narrow timber platform outside of the wall. The depth of water at one wharf is 6 feet, and at two wharves is 4½ feet at mean low water. At the remaining wharf it is less. One wharf has a coal-handling plant consisting of shears, with steam power for hoisting, and runways over which coal is wheeled in barrows to storage sheds. The other three wharves have no equipment for handling cargoes. On account of being substantially constructed the wharves on the Lamprey are in good condition. One of them is owned and occupied by the Newmarket Manufacturing Co., a textile concern. The others are owned by various parties and are not regularly occupied.

371. *Method of use by vessels.*—There are no lines of vessels of any kind, either for passengers or freight traffic, that ply regularly on the Lamprey River. The wharf of the manufacturing company is used by water carriers to deliver coal to the owners. The coal is mostly brought in seagoing vessels to Portsmouth, where it is rehandled and loaded on small barges drawing about 6 feet. A small amount of coal is carried in small schooners directly to Newmarket without rehandling. Both barges and schooners have to be towed from Portsmouth to Newmarket. Four drawbridges are passed on this trip, viz, one railway and one highway bridge at the head of Portsmouth Harbor, and the same at the entrance to Great Bay. At its destination coal is shoveled into tubs on the vessels, hoisted by steam power, and wheeled in barrows to the storage piles. The other three water terminals at Newmarket are not regularly used by water carriers. They are used to handle an occasional small amount of miscellaneous freight, and to some extent as small boat landings.

372. *Extent of use by vessels.*—The Lamprey River terminals are used only to a small extent in comparison with their capacity. The annual volume of traffic is estimated to be as follows:

	Short tons.
Coal	13,440

373. *General efficiency.*—Considering the small depth of the river channels, and consequent small size of vessels that can be used, and the small traffic the Lamprey River water terminals may be considered highly efficient.

374. *Whether open to all vessels.*—There are no water terminals on the Lamprey River that are by legal right open to use by all vessels on equal terms. There are, however, three privately owned wharves which can be used by arrangement with the owners. Under present conditions there is little or no demand for general wharfage. There are no wharves owned by the public, but the town of Newmarket owns 50 feet of unimproved water front that is available for a public landing, if needed.

375. *Terms and conditions of use.*—No regular schedule of wharfage charges is in use, probably because there is so little demand. Special terms are made as occasions arise.

376. (*b*) The town of Newmarket is served by the Boston & Maine Railroad. At its nearest point it is distant about one-half a mile from the navigable waters of the Lamprey River. None of the Lamprey River water terminals have physical connection with any railroad, and there is no contract between any water carriers and any railroad or railroads for interchange of traffic at Lamprey River points by prorating.

377. (*c*) The public highways of Newmarket are good and are adequate to accommodate the present traffic, but are not generally highly improved. The water terminals all have connection with the public highways but by means of poor roadways, there being very little carting to and from the wharves.

BELLAMY RIVER, N. H.

378. (*a*) *Location.*—Bellamy River is part of the Piscataqua River system of navigable waters. (See report on Exeter River.) It flows in a general southeasterly direction and enters the westerly side of Great Bay at its northeasterly extremity. The head of navigation of the river is at the city of Dover, 3½ miles from Great Bay and 9½ miles by water from Portsmouth, N. H. There are no wharves or other modern water terminals and transfer facilities on the Bellamy River.

379. *Descripton.*—This river was originally too shoal for any navigation except for a short distance from its mouth. A project for improvement was adopted in 1888, viz, to obtain by dredging a channel 50 feet wide and 5 feet deep at mean low water from the mouth of the river up to the head of navigation at Dover. This improvement was completed in 1896. The mean range of tide is 7 feet, giving at that time a depth of 12 feet for high-water navigation. The dredged channel has since then shoaled considerably. It is generally closed to navigation four or five months in the year by ice.

380. The only conveniences for loading or discharging vessels are timber bulkheads along the river bank, with light wooden trestle, or runways extending out at right angles to the bank to deep water. These landing places are provided at brickyards, of which there are four on the river, two being in operation during the season of 1912.

381. *Method of use by vessels.*—There are no lines of vessels of any kind, either passenger or freight, that ply regularly on the Bellamy River. Its landing places are used by vessels, generally shoal draft barges, to receive cargoes of bricks. They are generally laid alongside the trestles or loading stages, head in to the bank, and bricks are wheeled out to them from the shore. These barges are towed between the river and Portsmouth Harbor. Four drawbridges are passed on each trip, a railway and highway bridge at the head of Portsmouth Harbor and the same at the entrance to Great Bay.

382. *Extent of use by vessels.*—The terminal facilities of the Bellamy River are used to a small extent in comparison with their capacity. The only traffic is the shipment of bricks. The two

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

brickyards in operation shipped 1,500,000 bricks, or about 4,000 short tons, during the season of 1912.

383. *General efficiency.*—The terminal facilities are very crude, but the limited demand upon them probably does not warrant anything more expensive, and they may be considered fairly efficient for the existing traffic.

384. *Whether open to use by all, and terms and conditions of use.*—The landing places are not by legal right open to the use of all vessels on equal terms. Arrangements for the use by any vessel of such conveniences as exist can probably be made with the owners of shore property. The terms and conditions would be subject to special agreement in each case.

385. (*b*) *Railroad connections and prorating.*—A line of the Boston & Maine Railroad extends along the entire eastern bank of the navigable part of the river a short distance from the shore and at only a slight elevation above high water. Some of the brickyards have spur tracks in their yards, but there is no physical connection between the water terminals and the railroad. There is no contract between any water carriers and any railroad or railroads for interchange of traffic at Bellamy River points by prorating.

386. (*c*) *Highway connection.*—A public highway extends along the eastern side of the river at an average distance of about one-half mile from the shore. It is an earth road not highly improved, but adequate for the traffic. The landing places on the eastern side of the river have connection with this highway by means of ordinary private roadways adequate for the traffic.

387. (*d*) No modern water terminal and transfer facilities exist on the Bellamy River, and at the present time none are needed.

COCHECO RIVER, N. H.

388. (*a*) *Location.*—The Cocheco River is part of the Piscataqua River system of navigable waters. (See report on Exeter River.) It flows in a general easterly direction and enters the Piscataqua River on the western side about 9 miles above Portsmouth, N. H. The head of navigation is at the city of Dover, about 2.8 miles from the Piscataqua.

389. Seven water terminals are located at and near the head of navigation, all but one of the seven being on the north side of the river. One landing place is on the north side about 1 mile below the head of navigation.

390. *Description.*—In its natural state the river from Dover downstream for about 1½ miles was much obstructed by shoals of rock and earth, there being practically no water in some places at low tide. Several projects for improvement by dredging and ledge excavation have been adopted and executed, so that at present a least depth of 6 feet at mean low tide is available up to the head of navigation. The mean range of tide is 6.7 feet, giving a depth of about 12 feet for high-water navigation. The river is generally closed to navigation about three months in the year by ice. Of the wharves nes

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

the head of navigation, four on the north side are wooden platforms on pile foundations. The depth of water alongside ranges from 6 to 10 feet at mean low water. Each of these wharves has shears for hoisting coal or similar bulk commodities, with storage sheds and elevated runways for wheeling from vessel to storage pile. One of the four is occupied by a gas plant and one by coal dealers, and both are in fair condition. One of the others is used for storage of lumber and one is vacant. Both are in poor condition. Next down river on the north side is a stone bulkhead with no accessories, which goes dry at low water and is in poor condition. Next is a wooden platform on pile foundation, with about 4 feet of water at mean low tide. It has hoisting gear with stationary steam power for coal, together with elevated runways to the storage piles. It is part of an electric power plant and is in good condition. At the head of navigation on the south side is a small stone wharf, with about 2 feet of water at mean low tide. It is owned by a textile manufacturing concern and was formerly equipped with a steam-power coal-handling plant and large storage shed, but now has no accessories and is unoccupied. The landing place on the north side about 1 mile below the head of navigation is a wooden bulkhead that goes dry at low tide. It is part of a brick manufacturing plant, has no accessories, and is in good condition.

391. *Method of use by vessels.*—Dover is a manufacturing city with a population of about 15,000. The principal industries are the manufacture of cotton and woolen goods, leather belting, boots, shoes, and machinery. There are also wood-working mills, gas and electric-power plants. The water terminals of the Cocheco are used by vessels in the commerce pertaining to the city of Dover. There are no lines of vessels of any kind, either passenger or freight, plying regularly on the river. The wharves are used principally to deliver freight, chiefly coal, there being but little outward water-borne traffic. The greater part of the coal is brought to Portsmouth in large ocean-going carriers, and there rehandled and loaded on small barges of 5 to 6 feet draft. A small amount is brought on small schooners of about 10 feet draft and is taken to its destination without rehandling. A small amount of bricks is shipped by water on light-draft barges. Upon occasion when the demand warrants it cargoes of brick, sand, lime, cement, fire brick, and other building materials are received by water. All vessels of any considerable size are towed between Portsmouth and Dover. On this trip two drawbridges are passed at the head of Portsmouth Harbor. Coal and similar commodities are shoveled into tubs, hoisted by steam power, and wheeled in barrows to storage piles. Bricks and package freight are handled by hand.

392. *Extent of use by vessels.*—Cocheco River terminals are used to small extent in comparison with their capacity. The estimated annual tonnage is as follows:

	Short tons
Coal	20,000
Bricks	1,000
Miscellaneous freight	500
Total	21,500

393. *General efficiency.*—In addition to the coal brought into Dover by vessel there is at least 40,000 tons brought either by rail from

Portsmouth or all rail from the mines. The waterway and terminal of the Cocheco are efficient in that a lower freight rate is obtained on this rail-hauled coal than would be the case without the competition of water carriers. Considered by themselves the coal-handling water terminals are not provided with facilities that the amount of traffic would seem to warrant. Other terminals are as well equipped as is warranted by the traffic.

394. *Whether open to use by all vessels.*—There are no water terminals on the Cocheco which are by legal right open to use by all vessels on equal terms. The reason for this probably is that there is no constant demand for such accommodations, and owners of wharf property do not care to assume the expense of keeping it in repair and safe for public use. There are wharves at present unused, the use of which can be secured as occasion demands by special arrangements with the owners. For example, the Pacific Mills have lately used for discharging and storing brick a wharf owned by another company. There are no public wharves, but the city of Dover owns sufficient water front on both sides of the river near the head of navigation for the establishment of ample public terminals if needed.

395. *Terms and conditions of use.*—There is no established schedule of wharfage charges in use on the Cocheco River. Special terms are made as occasions arise. For example, in the case cited in the preceding paragraph, the Pacific Mills were required by the wharf owner to replank the wharf and assume all risks.

396. (*b*) Dover is served by the Boston & Maine Railroad, which crosses the river a short distance above the head of navigation. The shortest distance between the railroad and the navigable part of the river is about one-half of a mile. There is no physical connection between the railroad and the Cocheco River water terminals, but, if needed, spur tracks can practicably be extended to the water front on both sides of the river. There is no contract between any water carriers and any railroad or railroads for interchange of traffic at Cocheco River points by prorating.

397. (*c*) The principal streets of Dover are very good roads, but those near the water front are not highly improved. All the wharves have connection with the public highways, but generally over private ways some of which are rough and steep. In general the immediate highway connection is poor, but adequate to the present demands of traffic.

W. E. CRAIGHILL.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

REPORT OF COL. FREDERIC V. ABBOT, CORPS OF ENGINEERS, IN CHARGE OF THE BOSTON, MASS., DISTRICT.

[The letters (a), (b), (c), and (d) indicate subheadings as shown by footnotes.]

NEWBURYPORT HARBOR, MASS.

The United States has improved this harbor by deepening the entrance channel by converging jetties and by dredging and rock removal from the channel up to the town. At present in charter parties coal barges drawing 15 feet are guaranteed safe entrance at high water, some drawing 17 feet have safely crossed the bar and navigated the channel up to the town.

UPPER WHARVES WITHOUT RAILROAD CONNECTION.

(a) Above the highway bridge there are only the remains of abandoned wharves. Below this bridge and on the north bank there are only two wharves. One is a small pier with pipes and facilities for taking oil from ocean barges and delivering it into steel storage tanks on shore; the other is used for fish nets, reels for nets, etc. On the south bank, in sequence from the highway bridge, are the following wharves: (1) Coal pocket equipped for taking coal from ocean barges by steam power and storing it either under cover or in the open; (2) coal pocket equipped for taking coal from ocean barges by steam power and storing it either under cover or in the open; (3) one wharf in poor condition, with a railway for taking small craft out of water for repairs on each side of the wharf proper; (4) solid pier of the Merrimac Towing Co., with coal pier on its east side with facilities for unloading ocean coal barges by steam; (5) one abandoned wharf in dilapidated state, formerly used as a lumber wharf; (6) one wharf with inclosed shed, formerly used for storage of package freight by a steamer no longer running between Haverhill and Newburyport.

(b) There is no physical connection between these upper wharves and the nearest railroad, and there is no contract for interchange of long-distance traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(c) Good highways run to the wharves and are adequate for all commerce now seeking shipment or landing at this part of the harbor.

(d) Water terminals adequate for the needs of this part of the harbor exist as above described.

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.
(d) Necessity for water terminals.

LOWER WHARVES WITH RAILROAD CONNECTIONS.

(*a*) (1) Large piers and storage sheds of the Philadelphia & Reading Coal & Iron Co. These piers are provided with an efficient coal-hoisting equipment, overhead trestles for coal cars, and large sheds and covered coal pockets; (2) one wharf for coal with steam-hoisting machinery; (3) one wharf with steam hoist and two covered coal pockets; (4) cold-storage plant with stone pier and pile-supported head, with suitable facilities for receiving fish from the river side; (5) one good coal wharf with grab-bucket outfit for unloading coal barges, three overhead trestles from coal barges leading to covered coal pockets, and one to open storage pile; (6) a considerable space along the harbor front occupied by piles of coal in the open; (7) one lumber wharf and lumber yard, no special mechanical appliances for handling the lumber; (8) yacht club pier and clubhouse; (9) below this there is a double-track railroad for perhaps a thousand feet close to the water's edge, but the water is shoal for a considerable distance out.

(*b*) There is physical connection between all the lower wharves and the Boston & Maine Railroad, which has a double track running up as far as the western edge of the slip west of the Philadelphia & Reading Coal & Iron Co.'s wharf. At that wharf there is one track along the outer edge of the pier on which a train of cars can be loaded either by gravity from the pockets or by steam hoist from coal barges lying at the pier, and three tracks on which a railroad train can be loaded by gravity directly from the pockets overhead. This is the only wharf where both rail and water facilities are closely connected at present, but at all the lower wharves this is only a question of adding suitable appliances for handling freight. While the upper wharves have no direct physical connection with the railroad track, there is no topographical difficulty in the way of extending the railroad track up the shore as far as the highway bridges. So far as could be learned there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Good highways adequate to present and probable future development connect with all the lower wharves.

(*d*) Water terminals adequate to present needs exist as above described.

MERRIMAC RIVER, MASS.

Above Newburyport the Merrimac River has been improved to a depth of 7 feet and width of 150 feet at mean low water as far as Haverhill. The hat factory half a mile above the railroad bridge at that city is the head of existing navigation.

POWOW RIVER.

(*a*) Powow River is a tributary of the Merrimac River, and is thus contiguous to the improvement made by the United States on the

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

Merrimac River. In the town of Amesbury there is a coal yard and wharf receiving about 15,000 tons of coal annually by water. There are suitable mechanical appliances operated by steam to unload small barges, while one of the same class as these is used for coal traffic between Newburyport and Haverhill. This is a private plant and is not open to all water carriers on equal terms.

At the mouth of the Powow River, at a point known as Amesbury Ferry, there are two coal wharves, handling together from 4,000 to 5,000 tons of coal per annum. They are provided with mechanical appliances suitable for taking coal from vessels drawing not over 14 feet. These are private wharves and are not open to use by all water carriers on equal terms.

AT MERRIMACPORT.

(a) On the north bank of the Merrimac River, in the town of Merrimacport, is a coal wharf with steam hoisting appliances handling perhaps 4,000 tons of coal per annum from barges of the class running between Newburyport and Haverhill. This is a private plant and is not open to all water carriers on equal terms.

On the south bank, in the town of Groveland, 2 miles below Haverhill, is a coal wharf with steam hoisting appliances handling about 2,500 tons per annum from barges of the class running from Newburyport to Haverhill. This is a private wharf and is not open to all water carriers on equal terms.

(b) There is no physical connection between these coal wharves and the nearest railroad, and there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(c) To the wharves there are highways sufficient to accommodate the traffic likely to seek these localities for transfer of coal from water to land transportation.

(d) Water terminals exist as described above.

CITY WATER FRONT OF HAVERHILL.

(a) At Haverhill there are some 20 quay walls, locally known as "wharves." Some of these quay walls are 300 to 400 feet long, with sufficient water along their fronts to allow a coal barge drawing 40 feet to lie safely at low water. At some there are mechanical means of handling coal and other freight. It was stated at a public hearing held October 4, 1912, that some of those are public landings and have been so occupied since the city first received a charter. There are several private "wharves," which are used to a certain extent as public terminals. At the hearing Alderman Hood stated: "There are plenty of docking facilities in the city of Haverhill, and I have no doubt that the city of Haverhill would cooperate with the United States Government and with the Commonwealth of Massachusetts in bringing about any terminal facilities or such other things as may be necessary." The city now controls several sites with 300

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.
(d) Necessity for water terminals.

feet or more river frontage which could be made into thoroughly effective public landing places, open to all water carriers on equal terms.

(*b*) On the north bank of the Merrimac River at Haverhill there is no physical connection between the wharves and the nearest railroad, but the latter crosses the river, and spurs could be provided if need for such connections should develop. On the south bank, in what is now Haverhill (formerly Bradford), the box-board factory has a spur track to its wharf, so that coal can be delivered to the same coal pile by rail or by water; another wharf can also receive coal either by rail or by water, but the track is not so located as to give physical connection with the coal pile received by water. The other wharves on the south bank have at present no physical connection with the railroad. There is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination. In a hearing at Newburyport on September 16, 1912, before the Massachusetts Merrimac Valley Waterway Board, Capt. Woodman described his efforts to run steamers from the Merrimac River to Boston, and stated: "But just as soon as you get to running in good shape—why, I never run more than four months in my life before the Boston & Maine (Railroad) came along and wanted to know who was the moneyed end of the enterprise. They found out, and off she goes. I have been thrown out four times in just that way."

(*c*) Good city streets are closely adjacent to the wharves, and adequate connection therewith could easily be made whenever the necessity becomes apparent.

(*d*) Water terminals exist as above described.

HARBOR OF REFUGE AT SANDY BAY, CAPE ANN, MASS.

Sandy Bay breakwater is designed for a harbor of refuge only, but contiguous to it and to some extent sheltered thereby are Rockport Harbor, Rockport Granite Co.'s harbor, Pigeon Hill Granite Co.'s harbor, and Pigeon Cove Harbor.

ROCKPORT HARBOR.

(*a*) There are three granite wharves suitable for loading and unloading stone and fish from small schooners and sloops. These wharves are open to use by all water carriers on equal terms, except that at one of the piers there is a broad and convenient runway to connect the dock proper with a float. This is kept stored, except when naval vessels are in Sandy Bay; at such times the float is put in place and the whole outfit is reserved for the exclusive use of United States Navy boats and launches.

(*b*) There is no physical connection between the wharves and the nearest railroad, and there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*c*) Good highways run to the wharves and are adequate for all commerce likely to seek shipment from the basin, which is only about 600 feet by 1,400 feet in size.

(*d*) Water terminals adequate for the needs of the town exist as above described.

ROCKPORT GRANITE CO.'S HARBOR.

(*a*) The basin is formed by a breakwater and pier of granite blocks, and there is ample derrick equipment for handling granite blocks up to 30 tons in weight. The pier is not open to use by all water carriers on equal terms. The basin is fairly well sheltered, but in a few storms vessels have been damaged and small boats destroyed.

(*b*) There is no physical connection between the wharves and the nearest railroad, and there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) A steep but well-ballasted highway runs to the wharves and an industrial railroad track connects them with the quarries of the Rockport Granite Co. They are adequate for all commerce likely to seek shipment from the basin, which is only about 600 by 600 feet in size.

(*d*) Water terminals adequate for the needs of the town exist as above described.

PIGEON HILL GRANITE CO.'S HARBOR.

(*a*) The basin is formed by a breakwater and pier of granite blocks, and there is ample derrick equipment for handling granite blocks up to 30 tons in weight. The pier is not open to use by all water carriers on equal terms. The basin is untenable in northeast and easterly storms.

(*b*) There is no physical connection between the wharves and the nearest railroad, and there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) A steep but well-ballasted highway runs to the wharves, and an industrial railroad track connects them with the quarries of the Pigeon Hill Granite Co. They are adequate for all commerce likely to seek shipment from the basin, which is only about 300 feet by 500 feet in size.

(*d*) Water terminals adequate for the needs of the town exist as above described.

PIGEON COVE HARBOR.

(*a*) The basin is formed of a natural indentation in the rocky shore, nearly closed at the mouth by a heavy breakwater of granite blocks. There is fair equipment for loading stone or other materials, the area of the basin is very limited, and in violent storms boats inside the basin have broken their lines, been driven out through the entrance, and wrecked on the rocky coast. The piers are open to all on equal terms.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*b*) There is no physical connection between the wharves and the nearest railroad, and there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) A steep but well-ballasted highway runs to the wharves; formerly an industrial railroad connected the wharves with the New England Granite Co.'s quarry, but the track has been taken up. The highway connection is adequate for the paving-block and coal traffic using this basin, which is only about 600 by 600 feet in size.

(*d*) Water terminals adequate for the needs of the town exist as above described.

GLOUCESTER HARBOR, MASS.

The improvements made in Gloucester Harbor by the United States combine dredging and ledge removal in the inner harbor, some ledge removal in the outer harbor, and the building of a breakwater to afford safe anchorage in the outer harbor for all classes of vessels.

(*a*) There are at present about 12 abandoned wharves and 78 wharves in use in this harbor, of which the great majority are connected with the fish and allied trades, the balance with the receipt and distribution of coal. There are six landings and ferry wharves, and one large pier devoted to passenger traffic and package freight received and shipped by the Boston & Gloucester Steamboat Co. The fish wharves are of three general classes. The largest and best equipped are employed in the business of receiving and drying salt codfish for market, being provided with suitable storage sheds and racks, locally known as flakes, on which the codfish are exposed to sun and air after splitting. By count, as seen from the water, a little less than half of the fish wharves are wholly or primarily devoted to this use. The second class is exclusively devoted to the fresh-fish business, being provided in many cases with racks and reels for storing and drying the gill nets, which are becoming increasingly prominent in the Gloucester fishing business. By count, as seen from the water, about half of the fish wharves are wholly or primarily devoted to this use. The third class handles the by-products, fish oil, fish glue, fertilizer, etc., being either manufactured on the wharves or the materials received from the water and transferred by carting to the factories on shore. Perhaps 5 per cent of the fish wharves are wholly or primarily devoted to this use. As an adjunct to the fish business there are six boat railways of a size to handle the sailing craft making Gloucester their home port, and a number of repair yards, sail lofts, etc. About 18 wharves are devoted to this phase of the fish business, including in this category the wharves employed in the copper paint and antifouling paint manufacturing and shipping industries.

The coal wharves, 10 in number, are generally provided with covered pockets for coal storage, and in all but one instance have gins and an overhead runway for coal buggies, the hoisting from

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

coal barges being done by power on floating lighters which pass from wharf to wharf as needed. At one coal pocket there is the usual form of coal hoist and cars to unload the barges lying at the wharf.

The outer harbor has water deep enough to accommodate the largest vessels, but at the wharves depths are only sufficient for the class of vessels actually trading at them; the shelter is exceptionally complete and the anchorage is good. At many wharves the fishing boats were lying three and four deep, and about all were occupied except a very few which were in bad condition. At the present time there is more activity and evidence of commercial prosperity along the Gloucester water front than are generally found in cities many times the size of Gloucester.

The piers are all privately owned, and are not strictly open to use by all water carriers on equal terms, although most of them permit the landing of any fishing boats. It was stated that one pier in Harbor Cove was used by over 50 different privately owned fishing schooners. While no wharfage dues are charged, the vessels in many cases probably dispose of their cargoes (locally known as "fares") directly to the parties owning the wharves at which they unload. The coal wharves, steamboat wharf, etc., are, of course, privately owned and not open to all water carriers on equal terms.

(*b*) There is no physical connection between the wharves and the nearest railroad and there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Improved highways adequate to the traffic, present and prospective, connect all the wharves with the main streets of the city.

(*d*) Water terminals adequate for the needs of the town exist as above described.

BEVERLY HARBOR, MASS.

The natural channel, 18 feet deep, has been widened and straightened by the United States and is now utilized by large coal steamers, 5,000 gross tons and over, which, when fully loaded, draw 27 feet. Above the highway and railroad bridges there is a large, irregularly outlined, shallow basin; a northerly arm, locally known as Bass River, has been improved for about 1 mile to a depth of 9 feet by the State of Massachusetts; a second arm, locally known as Essex Branch, leads westward as far as Danversport; while a third, called North River, extends toward the south in rear of the city of Salem. Beverly Harbor is separated from Salem Harbor only by a short rocky promontory, the main entrance between Hospital Point and Great Haste Island being common to both harbors.

BASS RIVER.

(*a*) On the west side of Bass River there are two small private landings not open to all water carriers on equal terms, apparently mostly used for pleasure purposes.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

On the east side of Bass River is a large lumber wharf and the wharf of the Beverly Gas & Electric Co. The former has no special unloading equipment; the latter has a boom derrick, hopper, and overhead tramway for coal cars. These are private wharves, not open to all water carriers on equal terms.

(*b*) Neither of the above wharves on the east side of Bass River has direct physical connection with the Boston & Maine Railroad, but are separated by a street only from its right of way. No spurs run down to the wharves proper. There is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) The highways leading to the wharves suffice for the commerce likely to pass over them.

(*d*) Water terminals, adequate at the present time for this branch of the harbor and for the property abutting thereon, now exist as described above. With development of the water-front property, it is not improbable that additional wharves may be needed.

ESSEX BRANCH.

(*a*) At Danversport there are two coal wharves, with hoisting engines and derricks using coal tubs, and two lumber wharves without special unloading facilities; also two abandoned wharves. These are private wharves not open to all water carriers on equal terms.

(*b*) There is no physical connection between the wharves and the nearest railroad, and there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) The highways connecting with the wharves are adequate for all the commerce likely to seek loading or landing at the wharves.

(*d*) Water terminals adequate for the present needs of the town exist as above described.

NORTH RIVER.

North River is so shallow that there are no wharves.

BEVERLY HARBOR.

NORTH SIDE.

(*a*) Above the bridges there are three small wharves without unloading equipment, used for yachts and for landing logs, etc., for a last factory. Between the railroad bridge and the highway bridge the water area is occupied as storage and mooring ground for many yachts. Below the bridges is a coal wharf with one handling crane and covered coal pockets; an unimproved public landing; a large and well-equipped coal-handling plant with capacity to unload 7,000 tons from coal steamers in 24 hours (the coal can be handled from the pockets into railroad trains, electric-railroad freight cars, or carts, and the coal can be stored in covered pockets or in open pile); a

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

stone pier used as a boat yard and slip; a stone pier with lumberyard on one front and a coal pocket without power hoist on the other; a lumber wharf with a covered coal pocket and fixed coal-hoisting crane; and two large wharves with pipes and pumps for unloading oil from tank barges and steamers. The public landing is open to all on equal terms, being owned by the city. The other wharves are private property and are not open to use by all water carriers on equal terms.

(*b*) Above the railroad bridge there is no physical connection between the wharves and the railroad, but below the bridge the Boston & Maine Railroad has a track down the street in rear of the wharves and is required by the terms of its charter to run a spur into any wharf along the track on certain conditions. Such spurs have been run into the large coal wharf above described and into the oil wharf. There is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination. Such rail shipments as are made are stated to be subject to the regular published railroad tariff schedule.

(*c*) Improved and adequate highways have been completed to the above water terminals.

(*d*) Adequate water terminals exist as above described.

SOUTH SIDE.

(*a*) There is a large gas works with a stone pier extended by a pile wharf, on which there is a coal pocket, a coal crane with power, and suitable overhead tramways; also a pier belonging to the Salem Poorhouse, situated on Salem Neck. The first is a private wharf, and neither is open to use by all water carriers on equal terms.

(*b*) No physical connection exists between these wharves and the nearest railroad, and no contract exists for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Improved and adequate highways have been constructed to these wharves.

(*d*) Water terminals exist as above described.

SALEM WILLOWS.

(*a*) Near the point there is a yacht landing and a steamboat wharf. Electric street cars run to the inner end of the latter, which, for purely recreation purposes, is provided with awning-covered pavilions, etc.

(*b*) The only physical connection with a railroad is that between the recreation pier and the electric street-car line, and there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*c*) Improved and adequate highways have been constructed to both wharves.

(*d*) Water terminals exist as described above, and they are adequate for the present and prospective needs of commerce at Salem Willows.

SALEM MAINLAND EAST OF DERBY WHARF.

(*a*) The first wharf is at entrance to Cat Cove. It is a pile structure with warehouse at inner end. No special facilities for unloading freight. This is followed by an abandoned pile wharf, very small in size. Next in order going westward is that of the Philadelphia & Reading Coal & Iron Co. It has four fixed coal cranes, covered coal pockets with chutes, to load cars on four railroad tracks, the outer tracks being on the edge of the wharf where the cars can load either from coal barges or from the pockets. On the southern face of the pier are two additional coal hoists. The next wharf is the terminal of the Lehigh & Wilkesbarre Coal Co. There are six railroad tracks on the open part of the wharf. Near the head there is a coal crane for unloading barges, and a covered coal pocket with tracks alongside where cars can load by gravity. In the yard at the inner end of the wharf are four large coal conveyors for storage of coal in the open. The whole plant has the appearance of capacity and efficiency. This is followed by an abandoned stone pier, and this by two marine railways with covered sheds at inner end for the repair of small craft, and three marine railways without cover. These are followed by a stone pier now used for the storage of pleasure boats. All the above are private wharves, and are not open to use by all water carriers on equal terms.

(*b*) Of these wharves the only ones having physical connection with the nearest railroad are the Philadelphia & Reading and the Lehigh & Wilkesbarre. At those wharves there is no mutual contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination. Shipments by rail, it is stated, are made at the rates given in the published tariffs of the railroad company.

(*c*) Improved and adequate highways have been constructed to each water terminal.

(*d*) Water terminals exist as above described, and they are adequate for the present needs of this part of the Salem water front.

DERBY WHARF AND SOUTH RIVER.

(*a*) The water along the eastern face of Derby Wharf, which is really a stone breakwater protecting the entrance to South River, is so shoal that there are no landing places except for the smallest class of boats. On the western face of Derby Wharf there is fairly good water. The outer portion is used for the receipt and storage of crossties, there being two hoisting engines and derricks used for that purpose. The inner end is used for piles of iron and other junk. There are some sheds on this part, not in very good condition. On

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

Long Point, opposite the outer end of Derby Wharf, are the large factories of the Naumkeag Cotton Manufacturing Co., which has a wharf with four coal gins and coal piles in the open. At the bend of South River, where it turns to the westward, there are two long slips, the sides of which are occupied by five covered. coal pockets, with various sorts of coal-handling appliances, and some overhead tracks and open space for coal storage. The north shore of South River from these slips to the slip above the bridge is occupied by buildings built close to the bulkhead line. The slip is shallow and used only by small boats. Beyond the slip the bulkhead wall and land below it are used for spars and lumber, with a small hoisting gin and coal yard at the upper end. Beyond a small shallow slip at the end of this bulhead the bulkhead wall is continuous to the end of South River, a distance of 600 or 700 feet. It is utilized for coal and lumber yards, there being three large coal sheds with boom derricks, steam operated, and one with a coal gin. The south bank is wholly occupied by the Naumkeag factories, there being a coal landing with one coal gin, two cranes and one boom derrick, all power operated, and a large covered coal pocket for factory use.

(*b*) There is no physical connection between any of the wharves on South River and the railroad, and there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Improved and adequate highways have been constructed to all these wharves.

(*d*) Water terminals exist as described above; they are adequate for present and prospective commerce on South River.

LYNN HARBOR, MASS.

The natural channels, three in number and 6 feet deep at mean low water, have been replaced by two, one, the west channel, being 150 feet wide and 8 feet deep, the other being 300 feet wide (now completed to 200 feet throughout and being widened to 300 feet) and 15 feet deep at mean low water, with a turning basin at its inner end 500 feet square and 15 feet deep.

MAIN ENTRANCE.

(*a*) At Revere Beach is a private recreation pier and boat landing suitable for small steamers. It is open to all water carriers on equal terms for recreation purposes only. On Nahant there are two small steamboat landings with small passenger shelters. These are private wharves not open to all water carriers on equal terms.

(*b*) Neither of these wharves has direct physical connection with the nearest railroad, and there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*c*) The highways leading to the wharves suffice for the commerce likely to pass over them.

(*d*) Water terminals exist as above described, which are adequate for the present needs of commerce.

LYNN WEST CHANNEL (SAUGUS RIVER).

(*a*) Above the Boston & Maine Railroad bridge there is a large wharf on the north bank, concrete body and pile-supported head, with two gins for unloading molding sand and bins and sheds for its storage, a similar appliance for unloading coal with overhead tramways and storage in pile in the open, and a small deck wharf at the farther end with boom derrick for handling any class of reasonably light materials or machinery. Higher up the river, just below Fox Hill Bridge, is a solidly built pile wharf used by the paving division of the Bay State Street Railway Co. for the receipt, storage, and distribution of paving stones. Above the Fox Hill Bridge are the wharves of Brett Lumber Co. and Britt Bros., boat builders. Neither has mechanical appliances for handling material. All are private wharves, not open to all water carriers on equal terms.

(*b*) The large wharf first described has direct physical connection with the Boston & Maine Railroad, the paving-stone wharf has direct connection with the electric car tracks, the others have no direct physical connection with railroad tracks. There is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Improved highways adequate to the commerce involved lead to all the wharves.

(*d*) Water terminals adequate at this time for all commerce seeking shipment by Lynn west channel (Saugus River) exist as above described.

LYNN CHANNEL.

(*a*) On the left entering Lynn Harbor is a long two-pile trestle used in connection with the loading of garbage on scows for dumping at sea; this is followed closely by the gas company's wharf. There is a traveling overhead crane, overhead tramways, and storage in open piles. At some distance farther in there is a large coal wharf, traveling crane, covered coal pockets, and space for storing coal in the open; along the bulkhead line a coal and lumber yard served by a coal-hoisting gin; a large coal wharf with overhead traveling crane, covered coal pockets, covered coal piles, and some coal stored in piles in the open; a large coal-handling wharf, with coal elevators on south side, and overhead traveling crane on the north side, covered storage in bins and pockets; a coal wharf with overhead traveling crane of short travel, and covered coal pockets or bins; a lumber wharf, with no mechanical appliances; a combined lumber and coal wharf with boom derricks for handling coal, apparently power operated; street railway powerhouse and coal wharf, with power

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

crane and storage both in the open and under cover; and a wharf at which sand, lime, and building materials are handled by two gins and one boom derrick using power. At several of the coal and lumber wharves sand, cement, etc., appear to form part of the materials handled. These are all private wharves, not open to all water carriers on equal terms.

(*b*) There is no direct physical connection between any of the above wharves and the nearest railroad, though such a connection could be made so far as topographical conditions are concerned. No contract exists for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Ordinary unpaved streets lead to the above wharves, but they seem to be adequate for the commerce seeking access to the water front.

(*d*) Water terminals adequate to present needs exist as above described.

BOSTON HARBOR, MASS.

The natural approach from Nantasket Roads to the lower main ship channel through the Narrows was obstructed by dangerous rocks. The Narrows was 23 feet deep and only 150 feet wide. The upper main ship channel from President Roads to Boston was 18 feet deep and 100 feet wide. The channel from President Roads to Broad Sound had a least depth of 29 feet and width of 200 feet. With the developments in size of ships projects have been successively adopted and completed giving clear depths from the ocean to President Roads of 23, 27, and 30 feet and from President Roads to the city of 23 and 27 feet; a wide 35-foot channel from the ocean to the city is now completed for about half its width; all dredging is completed for its full width and all ledge excavation necessary to provide the full width is under contract.

(*a*) The inclosed map [1] shows the location and ownership of the present wharves in Boston Harbor, including under that head the main arms of the harbor, Charles River, both channels of Mystic River, Chelsea Creek, Fort Point Channel, and the Reserved Channel. The wharves are usually pile supported at the outer ends, the inner parts being solid fill, with stone retaining walls. Many of the wharves are provided with modern machinery for handling package and bulky freight. In size the piers vary from 1,200 feet in length down. The slips vary in depth from 40 feet at mean low water in the case of the 1,200-foot wharves down to nothing in the case of those where small craft lie aground alongside the wharf at low water. In general the water front is busy and the wharves are kept in condition suitable for the uses to which they are put. The real need of the port at present is an extension toward President Roads composed of new railroad-connected wharves suitable for the largest modern

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
[1] Not printed.

trans-Atlantic passenger and freight ships, to accommodate the 100,000 passengers and 2,000,000 tons of foreign freight handled annually. With such docks for foreign trade, the existing water front, now excessively congested, can be used by smaller craft engaged in general coastwise traffic, which embraces water-borne coal exceeding 6,000,000 tons per annum, oil, sugar, and lumber running well into the hundreds of thousands of tons, and a multiplicity of minor items reaching a large aggregate tonnage. Under date of November 29, 1912, the directors of the port of Boston report as follows:

* * * * * * *

The State of Massachusetts owns a tract of land containing nearly 7,000,000 square feet, with a frontage of 3,000 feet on the main ship channel. On 700 feet of this frontage there are three short pile piers, which are leased under short-term leases to two coal companies and a molasses company; 850 feet of this frontage is occupied by the pier and docks being constructed by the State for the fish industry of Boston. The pier, which is more than 90 per cent finished, is 1,200 feet long and 300 feet wide, and the estimated cost to the State is $1,000,000. The members of the fish industry have formed a corporation known as the Boston Fish Market Corporation, which has leased the pier for 15 years, with the right to renew the lease for 15 years further. They are to erect the necessary buildings on the pier and in its vicinity. Work on the construction of the buildings has started, and their estimated cost is between $600,000 and $700,000.

The rest of the frontage (some 1,500 feet) remains within the control of the State; 725 feet is occupied by Pier 5, usually known as the Commonwealth Pier; the other 800 feet is entirely unimproved and available for development.

The Commonwealth Pier is 1,200 feet long and 400 feet wide, and the berths on either side are now being dredged to a depth of 40 feet at low water, and the approach to the pier from the main ship channel, which had already been dredged to the same depth as the channel (35 feet at low water), is being enlarged.

The directors of the port of Boston are proceeding to cover this pier, which has hitherto been an open pier, in its entirety with two-story sheds, and to supply it with all the equipment necessary to make it a first-class terminal for the largest freight and passenger vessels. The work of dredging the berths is well under way, and bids have been advertised for the work on the pier itself, which it is estimated will cost in the neighborhood of $2,000,000.

One-half of the Commonwealth Pier has been assigned to the Hamburg-American Line for five years, with an option on their part to renew for five years longer in consideration of their undertaking to establish the service referred to later.

The remaining half of the pier, with a berth 1,200 feet long and 40 feet deep, which is expected to be available next summer, is open to all shipping, although a definite assignment of all or a portion of it would undoubtedly be made to any steamship line undertaking to maintain a regular service. It is, however, the intention of the directors of the port of Boston always to have at the disposal of shipping accommodations in advance of the demand and to always have open berths available for shipping.

As is the practice at the railroad-owned terminals, no charge is to be made to shipping for the use of piers, except where they require the use of passenger facilities.

In addition to the terminal property described the State owns fully 600 acres of unreclaimed tide flats on the north side of the harbor and some 300 acres of unfilled flats on the south side of the harbor adjoining the terminal described, which have been reserved to be available for the needs of the future. * * *

At the new State terminal there are to be passenger and freight elevators and booms and electric winches for handling freight. * * *

This property of the State immediately adjoins the freight terminal of the New York, New Haven & Hartford Railroad. There is ample room on the property that the State owns for railroad yards, warehouses, and industrial buildings, and the directors of the port of Boston have at their disposal $9,000,000 appropriated by the legislature in 1911, which is available for pro-

viding terminal facilities, and the Commonwealth Pier may be regarded as the first unit of a public terminal. * * *

At the Mystic, Hoosac, and Grand Junction Wharves there are grain elevators with galleries running to every pier, so that at each of these terminals any ship can, without moving, take on grain when lying at any berth, through any hatch.

There are mechanical coal-hoisting plants at the Mystic and Grand Junction Docks. (The plant at the Mystic Docks is very extensive.)

At the Grand Junction Docks there are passenger elevators, and at the Mystic Wharves freight elevators and escalators between the first and second stories of the pier sheds.

* * * * * * *

Under date of November 15, 1912, the Boston Chamber of Commerce furnished the following information as to the terms and conditions of use of wharves in Boston Harbor:

* * * * * * *

As to the question of whether the wharves are open to use by all water carriers on equal terms, I should say in one sense that they were and in another sense that they were not. For instance, the trans-Atlantic lines are given their piers free (except for a small charge for special passenger facilities), and I am sure that any trans-Atlantic line coming here would be given piers free of rental. On the other hand, each line is allotted its own berth, and in that sense the wharves are not open to use by all on equal terms. In the true sense, however, I should say they were.

As to coastwise steamers, to the best of my knowledge they all make arrangements with private wharf owners, pay a rental, and make their own trade. I am of the opinion that none of these trades are public, and that each is based on its own merits.

* * * * * * *

(*b*) Continuing, in their letter of November 29, 1912, the directors of the port of Boston state that:

* * * * * * *

Rails are to be laid on the Commonwealth Pier, connecting with the adjoining yard of the New Haven Railroad, through which physical connection exists with all the railroads entering Boston.

The Boston & Maine Railroad and the New York, New Haven & Hartford Railroad have agreed to make the same railroad rates apply to the State's terminal as to their own export and import terminals. * * *

Nearly all of the foreign trade of the port is now conducted at terminals owned by the railroads. The Boston & Maine Railroad owns the Hoosac and Mystic Docks, the Boston & Albany the Grand Junction Docks, and the New York, New Haven & Hartford the New England Docks. All of these terminals are extensive, with deep-water docks. At the Hoosac Docks the longest berth is 630 feet; at the Mystic Docks, 900 feet (though above a drawbridge there is a coal quay nearly half a mile long which is part of this terminal); at the Grand Junction Wharves, 780 feet; and at the New England Docks, 1,000 feet.

In reply to an inquiry addressed to the railroad companies as to whether these terminals were open on equal terms to all, the Boston & Maine and New York, New Haven & Hartford Railroad Companies replied "Yes."

The Boston & Albany Railroad Co. replied: "Yes; to all who do business via the lines in whose interest the piers were constructed. Strictly local or tramp cargo is taken subject to the convenience of the line regularly using the piers."

At none of these terminals is any charge made to the ships, except in certain cases where the use of passenger accommodations is required.

* * * * * * *

The Union Freight Railroad, with tracks on Atlantic Avenue, connects all wharves lying between the North Station on Charles River and the South Station on Fort Point Channel.

(*b*) Physical connection between water terminals and railroads.

a lock provides entrance to the Charles River Basin, into which two so-called canals, the Lechmere and the Broad, debouch. The river was formerly dredged by the United States as far up as Arsenal Street Bridge; the permit for the dam, issued by the Secretary of War, contained clauses making incumbent on the State the maintenance of channels in the river and in the basin. In spite of the difficulties of passing these bridges and lock the river above the Charlestown Bridge retains a commerce approximating 600,000 tons per annum, of which coal is the heaviest item, followed by lumber. At the upper end of the basin and on the river above there are only two wharves now in use for commercial purposes, handling together about 17,000 tons of coal per annum. The upper wharf receives coal by rail also. The shores of the basin, with these two exceptions, are utilized for park purposes by the Metropolitan Park Commission. At the head of navigation in Watertown the United States arsenal has a granite quay wall at which lighters can lie, but it has not been so utilized by the arsenal authorities for many years, all their shipments of ordnance and receipt of materials being by rail.

Fort Point Channel lies between Boston and South Boston, and as far up as Dorchester Avenue Bridge has been deepened by the United States to 23 feet. This portion of the channel forms part of Boston Harbor proper and has been covered by the part of the report on terminals in Boston Harbor. Above the Dorchester Avenue Bridge the channel is narrow and comparatively shallow, is crossed by a large number of railroad drawbridges close together, and heads in South Bay, of which the south and east shores have channels dredged along their fronts by the State of Massachusetts; along the west shore there are wharves somewhat out of repair and with few mechanical facilities, but which handle annually a considerable volume of coal, lumber, and building materials. The east and northerly sides of South Bay are railroad owned, and have no wharves nor water of any utilizable depth.

In rear of the South Boston Commonwealth land, and between it and South Boston, lies the so-called reserved channel, upon which there are a number of coal and factory wharves. This area has recently been the subject of projects for large developments, which have not as yet assumed concrete form. This reserved-channel area is included in the part of this report on Boston Harbor proper.

(*a*) All of the wharves described above as being on water contiguous to Boston Harbor are privately owned, and are not open to use by all water carriers on equal terms and conditions of use.

(*b*) Physical connection exists between the wharves on both banks of that part of Mystic River which lies between Island End River and the eastern division bridge of the Boston & Maine Railroad with some wharves on Charles River, a wharf at the extreme upper end of Chelsea Creek, and with Millers River wharves; the other wharves described as being on waters contiguous to Boston Harbor have no physical connection with railroad tracks. There are no contracts at any of these wharves for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(a) General location and description.
(b) Physical connection between water terminals and railroads.

(c) Improved and adequate highways connect with most of the wharves above described as lying on waters contiguous to Boston Harbor.

(d) Water terminals exist as above described.

[Chap. 748, acts of 1911 of Massachusetts as modified by chap. 663, acts of 1912.]

AN ACT Relative to the development of the port of Boston.

Be it enacted, etc., as follows:

SECTION 1. The governor, with the advice and consent of the council, shall appoint three persons, and the mayor of the city of Boston shall appoint one person, and the four persons so appointed, with the chairman of the harbor and land commissioners, ex officio, shall constitute a board to be known as the directors of the port of Boston, hereinafter called the directors. The terms of office of the persons first appointed by the governor shall be so arranged and designated at the time of their appointment that the term of one member shall expire in three years, one in two years, and one in one year from the first day of July, nineteen hundred and eleven, and the term of office of the member appointed by the mayor shall expire in three years from the first day of July, nineteen hundred and eleven. Annually thereafter the governor shall appoint one member to serve for three years, as the term of any member appointed by him shall expire; and at the expiration of the term of the member appointed by the mayor the mayor shall appoint a member to serve for three years. Any vacancy occurring among the directors shall be filled for the unexpired term by the governor or by the mayor, accordingly as the vacancy occurs among the members originally appointed by the governor or by the mayor, respectively. In all cases a member shall continue to serve until his successor is appointed and qualified. The governor shall designate the chairman, who shall receive an annual salary of fifteen thousand dollars, and shall devote his whole time to the work of the directors. The other directors, including the chairman of the harbor and land commissioners, shall each receive an annual salary of one thousand dollars. Said sum of one thousand dollars shall be in addition to the annual salary of the chairman of the board of harbor and land commissioners as chairman of said last-named board.

SECTION 2. The directors of the port of Boston shall be the administrative officers of the port, shall cause to be made all necessary plans for the comprehensive development of the harbor, shall have immediate charge of the lands now or hereafter owned by the Commonwealth upon or adjacent to the harbor front, except lands under the control of the metropolitan park commission or of the metropolitan water and sewerage board, and of the construction of piers and other public works therein, shall administer all terminal facilities which are under their control, shall keep themselves thoroughly informed as to the present and probable future requirements of steamships and shipping, and as to the best means which can be provided at the port of Boston for the accommodation of steamships, railroads, warehouses, and industrial establishments. The directors shall appoint such engineers, clerks, agents, assistants, and other employees as they may deem necessary to carry out the purposes of this act, and shall determine the duties and compensation of such employees. The appointment of employees shall be subject to the laws relating to civil service in the Commonwealth, so far as they are applicable.

SECTION 3. The directors shall have an office in the city of Boston in which they shall keep maps, charts, plans, and documents relating to the lands and waters in their charge. The board of harbor and land commissioners shall deliver to the directors such maps, charts, plans, and documents now in the custody of said board relating to the waters and lands in charge of the directors as may be practicable; and the directors shall at all times have access to any other maps, charts, plans, and documents relating to said waters and lands in the office of said board or in the office or custody of any other public board, commission, or official.

SECTION 4. All the rights, powers, and duties now pertaining to the board of harbor and land commissioners in respect to such lands, rights in lands, flats,

(c) Connection with highways.
(d) Necessity for water terminals.

shores, waters, and rights belonging to the Commonwealth in tidewaters an land under water as constitute that part of Boston Harbor lying westerly an inside of a line drawn between Point Allerton on the south and the southerly en of Point Shirley on the north, or as adjoin the same or are connected therewith and any other rights and powers heretofore vested by the laws of the Common wealth in the board of harbor and land commissioners in respect to any part o said area, are hereby transferred to and hereafter shall be vested in and exercise by said directors. There shall also be transferred to and vested in the director the right to expend any unexpended funds heretofore appropriated to be ex pended by the board of harbor and land commissioners in the area above desig nated, and the right which the board of harbor and land commissioners has here tofore exercised in regard to moneys paid to the Commonwealth in accordanc with the provisions of section twenty-three of chapter ninety-six of the Revise Laws. Said directors shall also assume and take over, on behalf of the Com monwealth, any rights, powers, and duties of the board of harbor and lan commissioners under any contracts heretofore made for the improvement, fill ing, sale, use, or other disposition of the lands, flats, or waters of the Common wealth within said area, including any structures now existing or being buil therein or thereon.

SECTION 5. With the consent of the governor and council, the directors ma take or acquire by purchase or otherwise, and hold, such real property and suc rights and easements therein as the directors may from time to time conside necessary for the purpose of constructing, or securing the constructing or uti lizing of, piers and, in connection therewith, highways, waterways, railroa connections, storage yards, and sites for warehouses and industrial establish ments, and may lay out and build thereon and upon such other lands as unde section four of this act are under its jurisdiction such piers, with buildings an appurtenances, docks, highways, waterways, railroad connections, storage yard and public warehouses as, in the the opinion of the directors, may be desirable *Provided, however*, That if general plans bearing the signed approval of th directors or of a majority of them, or, until the appointment and organizatio of the directors bearing the signed approval of the board of harbor and lan commissioners, given after due notice and a hearing, describing the propert and showing the location and character of any proposed docks, piers, wharve warehouses, factories, power plants, and industrial terminals, of adequate an proper design and general suitability for the purposes for which they are to b used, shall be filed with the directors, together with a written notice signed b the owners or lessees or by others having legal rights in the premises, statin that they propose to construct upon the property described the improvement shown by said plans and claiming exemption from the taking by eminen domain as authorized by this act of any of such property, including the land upon which said improvements are to be constructed, then said land and sa improvements shall not be taken by the directors by the right of eminent doma without the authorization of the general court granted within forty years aft the date of the filing of said plans, if substantial construction in general a cordance with such plans is actually begun in good faith within one year aft the date of the approval by the directors of the plans, and if said improvemen are finished substantially in accordance with said plans within five years aft the beginning of the construction of said improvements unless the directors sha extend the time within which said improvements shall be completed: *A provided further*, That after completion said improvements during said peri of forty years are kept in suitable repair and are used for the purposes which said approval applied: *And provided further*, That if general plans bea ing the signed approval of the directors or of a majority of them, given after d notice and a hearing, and describing the property and location and charact of any existing docks, piers, wharves, warehouses, factories, power plants, a industrial terminals, and certifying that they are of proper design and adequa and suitable for the purposes for which they are to be used, and that they a in proper condition and in thorough repair, shall be filed with the directors, gether with a written notice signed by the owners or lessees, or by others ha ing legal rights in the premises and claiming exemption from the taking eminent domain as authorized by this act of any such property, including t lands upon which said improvements have been constructed, then said lan and said improvements shall not be taken by the directors by the right eminent domain without the authorization of the general court granted with forty years after the date of the approval by the directors, if during that ti such property is kept in suitable repair and is used for the purposes to whi

said approval applied: *And provided further*, That none of the exemptions from the right of eminent domain provided for in this act shall apply to the taking by the directors of any property necessary for providing suitable and convenient track connections between the rails serving any pier or piers that may be built or acquired or improved under the terms of this act and the rails of any existing or proposed railroad that now reaches or hereafter may reach Boston.

SECTION 6. In order to take any property by right of eminent domain, the directors shall within ninety days after voting to take any lands or easements therein file and cause to be recorded in the registry of deeds for the county in which the property to be taken is situated a description thereof sufficiently accurate for identification, with a statement of the purposes for which the same was taken, signed by a majority of the directors. The recording shall operate as a taking of the real estate and of the rights and easements therein described. No taking shall be valid unless it is recorded in accordance with the provisions of this section.

SECTION 7. The Commonwealth, through its treasurer and receiver general, shall pay all damages to property sustained by any person, firm, or corporation by the taking of any land or any right or easement therein. Any person, firm, or corporation sustaining damage as aforesaid, and failing to agree with the directors as to the amount thereof, may have the same assessed and determined in the manner provided by law in the case of land taken for the laying out of highways, on application at any time within three years after the taking of such land or right or easement therein; but no such application shall be made after the expiration of the said three years.

SECTION 8. All piers and other similar structures built by the directors shall be equipped, either by the directors or by the lessees thereof, with fireproof sheds, railway tracks, cranes, and other machinery and accommodations for the convenient, economical; and speedy loading and discharge of freight; and the directors may acquire, hold, and operate such lighters and other vessels as may be convenient and, in the opinion of the directors, needed for that purpose. The directors shall make such reasonable rules and regulations and shall charge such reasonable rates for the use of such structures and equipment as they may from time to time deem wise.

SECTION 9. The directors shall have the power to lease for a period not exceeding twenty years, under such covenants and conditions as they may prescribe, storage facilities, wharves, piers, bulkheads, docks, sheds, warehouses, and industrial locations within their charge. They may lease sites for warehouses and industrial locations for a longer period, but every lease of such sites for a period exceeding twenty years shall provide for a readjustment of the rental at intervals of not more than twenty years. No lease for a term exceeding five years shall be valid until approved by the governor and council. The income from all wharfage and storage rates, use of cranes, lighterage, dockage, and other charges, and from the leases of lands, storage structures, wharves, piers, docks, sheds, warehouses, and industrial sites, and all moneys hereafter received which are now by law paid into the Commonwealth's flats improvement fund shall be collected by the directors and paid into the treasury of the Commonwealth and placed to the credit of a fund which shall be called the port of Boston fund. Said fund may be invested by the treasurer and receiver general of the Commonwealth at his discretion from time to time in the manner now provided by law for the investment of the Commonwealth's funds; and all income from such investments shall be added to the fund. The directors may expend the port of Boston fund for the purpose of operating, maintaining, repairing, and preserving the property in the control of the directors, and such sum or sums as the legislature may appropriate annually for salaries, office expenses, and general engineering expenses shall be paid, so far as possible, from said fund; any balance remaining from said fund after the aforementioned expenses have been paid shall be applied to the payment of interest and to the annual payments on account of principal of any securities issued under authority of this act, or which may hereafter be issued, to raise money to be expended by the said directors for the development of the port of Boston. (Ch. 663, acts of 1912.)

SECTION 10. The directors, with the approval of the governor and council, are authorized to grade and surface suitably any railroad locations or traffic ways which are or may be located on lands, flats, or rights therein, now owned or hereafter acquired by the Commonwealth under the provisions of this act, and to carry said ways or railroads over or under any railroad or railway loca-

tion or public way in order to eliminate crossings at grade, and to
suitable and convenient track connections between the rails serving a
or piers and those of any existing or proposed railroad that now rea
hereafter may reach Boston. All piers held or controlled by the directo
also be accessible and open to all teaming and lighterage traffic, subject
regulations as the directors may from time to time make.

Upon application to the directors, any railroad company that now rea
hereafter may reach Boston, either by its own rails or under trackage o
contract or agreement with any other railroad company, shall be provi
the directors with a track connection with the tracks serving such pier o

SECTION 11. The directors shall take all proper measures to obtain fr
city of Boston, without expense to the Commonwealth therefor, a convey
all the present right, title, and interest of the city in and to Apple Islan
the flats appurtenant thereto, and in and to any other flats and rights
city on the easterly side of East Boston, which, in the opinion of the dir
are required for the development contemplated by this act, and the city o
ton is hereby authorized to make such conveyance, and also in furthera
the development of the port to make conveyance to the directors or othe
only for maritime or commercial improvement, of any shore lands owned
elsewhere, acquired either by purchase or taking.

SECTION 12. It shall be the duty of the directors forthwith to make, a
far as may be practicable, to put into execution, comprehensive plans pro
on the lands now owned or hereafter acquired by the Commonwealth in th
described in section four of this act adequate piers, capable of accommo
the largest vessels, and in connection with such piers suitable highways,
ways, railroad connections and storage yards, and sites for warehouse
industrial establishments. The directors shall report to the next general
on or before the fifteenth day of January, nineteen hundred and twel
necessary plans and estimates of cost for the construction of a dry dock eq
with modern facilities and appliances, sufficient in size for the accommo
of any modern ocean steamship.

SECTION 13. The directors shall, on the first day of January of each
submit a report to the general court, which report shall contain a statem
the doings of the directors during the preceding year and such recommend
as to legislation as, in the opinion of the directors, may be necessary
pedient to enable them better to administer the affairs of the port of B
and to regulate the shipping therein and the use of the piers, docks, an
minal facilities under the charge of the directors.

SECTION 14. There shall be paid out of the treasury of the Commonweal
be expended by the directors during the year ending on the thirty-first d
December, nineteen hundred and eleven, the sum of fifty thousand dollars f
salaries and expenses of the directors and for defraying the cost of the s
and plans described in section twelve of this act.

SECTION 15. Every authority or license granted since the year eighteen
dred and sixty-eight by the general court, or by the board of harbor and
commissioners, to any person, firm, or corporation to build or extend a
or other structure upon, or to drive piles in, or to fill or otherwise to o
land in tide or navigable water, within the area described in section fou
under the control of said directors, revocable at the discretion of the g
court, and every other similar right or privilege within said area, subject
control of said directors, revocable at the discretion of the general court
manner provided by law, whether or not compensation has been paid unde
provision of law or otherwise, shall hereafter cease and determine, or b
ject to forfeiture, in case of the nonuse of the same for an unreasonable
without reasonable cause, and it shall be prima facie evidence that the sa
held unused in restraint of trade when the tendency of such nonuse is t
vent competition in its broad and general sense, unless such person, fir
corporation shall within one year after the passage of this act make reas
and substantial use of structures, or shall reasonably and substantially o
land in tide or navigable waters, for the purposes for which the author
license was granted; and thereupon every such authority or license and
similar right and privilege shall cease and determine on repayment, or
of repayment, by the Commonwealth of compensation therefor to the a
which shall have been paid into the treasury of the Commonwealth in a
ance with the terms of such authority or license; and it shall be the duty
harbor and land commissioners and of the attorney general, or of their s

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sors in office, to cause a proper certificate of the revocation of such authority or license to be recorded forthwith in the registry of deeds for the county within which such structure was built or work done.

SECTION 16. The supreme judicial court shall have jurisdiction in equity, upon information filed by the attorney general, of violations of the provisions of this act.

SECTION 17. To meet expenses that may be incurred under the provisions of this act the treasurer and receiver general is hereby authorized, with the approval of the governor and council, to issue bonds, scrip, or certificates of indebtedness to an amount not exceeding nine million dollars, for a term not exceeding forty years, to be in such form, to bear such rate of interest, and to be issued in such amounts, from time to time, as the treasurer and receiver general, with the approval of the governor and council, shall determine.

SECTION 18. Chapter six hundred and forty-eight of the acts of the year nineteen hundred and ten and all acts and parts of acts inconsistent herewith are hereby repealed.

SECTION 19. The provisions of section one relative to the appointment of directors of the port of Boston, and the provisions of section five relative to the approval of certain plans by the board of harbor and land commissioners until the appointment and organization of said directors, shall take effect upon the passage of this act. The remaining provisions of this act shall take effect thirty days after its passage: *Provided, however*, That the board of harbor and land commissioners shall continue to exercise all powers now vested by law in said board to the extent of taking action at any time within three months after the passage of this act upon any petition now pending before said board upon which a public hearing was held, or an order of notice of a public hearing was issued, prior to the passage of this act.

Approved, July 28, 1911, and May 28, 1912.

DORCHESTER BAY AND NEPONSET RIVER, MASS.

The United States has dredged connecting channels 18 feet deep at mean low water by 175 feet wide through Dorchester Bay to Commercial Point, at the mouth of Neponset River, and 15 feet deep by 100 feet wide from that point up the river to the Neponset Highway Bridge. From this point upstream the State of Massachusetts has dredged a channel 6 feet deep at mean low water 100 feet wide at the lower end and 50 feet wide at the extreme upper end, and has by statute guaranteed the maintenance of the channel, which extends the usefulness of the United States improvement about 2½ miles farther inland.

DORCHESTER BAY.

(*a*) On the north shore of Dorchester Bay there is a recreation pier built by the State near Fort Independence, with facilities for pleasure boating and for shelter of pleasure seekers. Above this, on the south shore of the bay, is a wharf for the use of a boys' charity school on Thompsons Island without mechanical appliances for handling freight. Farther up the bay and on the opposite shore is a large gas plant with coal-handling wharf and usual hoisting appliances and trestles for coal cars, and a sewage pumping plant with wharf for receiving and unloading its coal by power. At Savin Hill is a yacht club landing, etc. Between Savin Hill and Commercial Point there are two coal wharves provided with the usual hoists and overhead tracks for coal cars. The entire head of Commercial Point is occupied by a large gas plant with covered coal pockets, a coal wharf, and

(a) General location and description.

efficient hoisting and distributing machinery. The recreation pier (for recreation use only) is open to all on equal terms. The other wharves are private and are not open to all water carriers on equal terms.

NEPONSET RIVER.

(*a*) The south shore of Commercial Point, adjacent to the gas plant, is occupied by a coal pocket with power appliances. Upstream from Commercial Point for half a mile the west bank is devoted to park uses, bathing pavilions, etc., which are succeeded by a large and complete establishment for building large yachts and keeping them safe during the winter and, after an interval of natural bank, by a large lumber yard, with bulkheads and sheds for unloading and storing lumber received by vessel. No mechanical appliances were in evidence. Next to the New York, New Haven & Hartford Railroad bridge is a former landing place with stone bulkhead wall. It is now out of use. Between the railroad bridge and the highway bridge is a coal wharf with usual hoisting machinery and storage facilities. On the part of the river improved by the State, contiguous to the United States improvement, there is on the south bank, about a quarter of a mile below Milton Mills, a small wharf privately owned, and on the same bank just below the railroad bridge are two wharves, one for lumber and one for coal; the latter only has mechanical appliances for unloading freight. All the wharves on Neponset River are privately owned and are not open to use by all water carriers on equal terms.

(*b*) There is no physical connection between any of the wharves and the nearest railroad, and there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Good highways run to the wharves and are adequate for all commerce likely to pass over the latter.

(*d*) Water terminals adequate for existing and prospective commerce exist as described above.

WEYMOUTH FORE RIVER, MASS.

The upper limit of the approved project of improvement of Weymouth Fore River is Quincy Bridge.

(*a*) On the left bank of the river and just below the bridge is a granite quay wall, carrying a coal pocket for local coal distribution, provided with good mechanical facilities for taking coal from barges, and a concrete quay wall carrying the Old Colony Railroad power plant and a pile wharf with good mechanical facilities for handling from barges the coal used by the plant. I am informed that the town of Quincy proposes the construction of a municipal pier to which access will be afforded all on equal terms, but such pier has not yet been built.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*b*) There is no physical connection between the above wharves and the railroad, and there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Both wharves have improved highways adequate to the traffic likely to seek shipment or unloading there.

(*d*) Water terminals exist as described above.

Above the bridge, and closely contiguous to the improved part of the river, lies the Fore River Shipbuilding Co.'s works.

They have two small mooring slips dredged to 15 feet at low water, and one large mooring slip (30 feet deep) 200 feet wide and 840 feet long, with a solid quay wall on the southern side; on this quay wall runs a powerful gauntry crane, capable of handling naval turrets, heavy guns, and the like. Railroad tracks communicate directly with the quay wall and crane. The whole is an efficient and powerful terminal for exchange of traffic between rail and water. It is used exclusively in connection with the building and equipping of large vessels. There is also an exceptionally large launching ways and shipbuilding shed capable of use by two vessels at once, each over 600 feet long, and a powerful marine railway. The terminal facilities are not open to all on equal terms, but are for the exclusive use of the shipbuilding company.

(*a*) Excellent physical connection exists between this modern water terminal and the railroads serving the adjacent territory. No contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination is known to exist, and no such contract is probable, as the whole use of the plant is for building and launching large ships.

(*b*) Fully improved and adequate highways connect with the plant and wharf.

(*c*) Water terminals exist as above described.

Above these works the State of Massachusetts maintains the channel originally dredged by the United States up to a point about 1,000 feet above Braintree Bridge.

(*a*) The upper 3,000 feet of this improved stretch of river provides shipping facilities for a number of coal yards and lumber yards lying along quay walls, which are sufficient to provide for the small annual commerce using this part of the river. They are private water fronts exclusively, and are not open to all on equal terms. No municipal or public wharves are known to exist here.

(*b*) There is no railroad connection to these quays and slips, and there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Adequate highways afford reasonably convenient access to these private wharves.

(*d*) Water terminals exist as above described.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

WEYMOUTH BACK RIVER, MASS.

Weymouth Back River has been improved by the United States to a depth of 12 feet and width of 200 feet up as far as the wharf of the American Agricultural Chemical Co. From that point to the naval magazine at Hingham a 5-foot channel was dredged by arrangement between the War and Navy Departments. This channel is now being dredged by the Navy Department to 12 feet depth.

(*a*) At the chemical company's plant there are wharves at which barges and lighters drawing 12 feet can lie at low water. There are suitable mechanical appliances for handling chemical fertilizer, etc., from shore to barges and for unloading materials from barges to the storehouses. The wharves are private property, not open to all water carriers on equal terms.

(*b*) There is no physical connection between the wharves and the nearest railroad, and there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Good highways permit access to the wharves, and they are adequate for all commerce likely to seek shipment from the landing place.

(*d*) Water terminals exist as above described.

NAVAL MAGAZINE AT HINGHAM.

(*a*) At the naval magazine there is a still-water basin, inclosed, except at the entrance, by a concrete wall. Lighters drawing 12 feet can lie safely in this basin at low water. There are suitable mechanical appliances for unloading and loading the barges and lighters with high explosives, shells, etc.

(*b*) There is a standard-gauge railroad track along the landward side of the basin and a naval equipment, consisting of suitable cars and a compressed-air locomotive, to handle explosives to the various magazine buildings. This track connects directly with the tracks of the New York, New Haven & Hartford Railroad Co. As the plant belongs to the Navy Department, it is obvious that no contract can exist for prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) The magazine grounds are provided with good roads, which, with the railroad tracks, are adequate for all uses connected with materials received or shipped from the magazine by water.

(*d*) Water terminals exist as above described.

HINGHAM HARBOR, MASS.

In 1893 Hingham Harbor had been improved by the United States to a depth of 10 feet and width of 100 feet up to a point about 500 feet above the steamboat wharf. The channel was redredged in 1910 to 8 feet depth and width of 100 feet to the steamboat wharf and to

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

width of 50 feet and depth of 6 feet 500 feet farther. This channel has been widened, extended somewhat, and at its upper end an anchorage basin 6 feet deep has been provided by the State.

(*a*) There are two privately owned lumber wharves, which have sufficient equipment to attend to the comparatively small shipments received, and a privately owned coal wharf, with the usual type of coal hoist, which receives some coal by water. There is a yacht club pier situated just at the upper end of the anchorage basin dredged by the State, which is kept in excellent condition by its owners. The steamboat wharf is no longer used. There are no wharves which are open to all on equal terms.

(*b*) There is no physical connection between the wharves and the nearest railroad, and there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Good highways permit access to the wharves, and they are adequate for all commerce likely to seek shipment from Hingham.

(*d*) Water terminals exist as above described.

PLYMOUTH HARBOR, MASS.

In front of the town wharves the United States has dredged a basin about 860 feet long, 150 feet wide, and 9 feet deep, and has connected this basin with deep water off the north end of Long Beach by a dredged channel 150 feet wide and 9 feet deep. The State of Massachusetts and the town of Plymouth jointly have dredged a channel 150 feet wide and 18 feet deep from the same deep water off Long Beach to the works of the Plymouth Cordage Co., about 2 miles west of the town anchorage basin.

(*a*) The wharves on the anchorage basin are mostly owned by private parties and are suitable for the storage and transfer from water to land of the character of traffic now utilizing them. This is mostly coal, lumber, and building materials, with some little fish. The mechanical equipment is not modern in most cases, but is adequate to the present needs. There is one wharf owned and maintained by the town, which is kept open to all on equal terms.

(*b*) There is no physical connection between the above wharves and the railroad, and there is no contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Improved highways adequate to the traffic likely to seek shipment or unloading at the wharves now exist.

(*d*) Water terminals exist as described above.

PLYMOUTH CORDAGE CO. PIER.

(*a*) For the protection of Plymouth Harbor the United States has spent large sums to hold Long Beach against breaking by storms. Contiguous to this beach is the entrance to the State channel to the

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(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.
(d) Necessity for water terminals.

above pier. The Plymouth Cordage Co. has built an ample stone pier, which, it is stated, is to be provided with warehouses and freight-handling appliances to accommodate large vessels from foreign ports unloading hemp, sisal, etc., used in the manufacture of rope and twine. Notification of the arrival of the first of such ships has been verbally promised this office.

(*b*) There is excellent physical connection between the plant of the Plymouth Cordage Co. and the New York, New Haven & Hartford Railroad. As the pier is privately owned by the cordage company, it has not been possible to learn whether there is any contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination. Such contract appears improbable, at any rate, prior to the completion of the warehouses, etc., on the pier.

(*c*) There is ample highway and railroad approach to the pier.

(*d*) Water terminals exist as above described.

PROVINCETOWN HARBOR, MASS.

Provincetown Harbor is mainly used as a stopping place for vessels and tows of barges in bad weather, as a place of rendezvous for the Navy fleets for maneuvers, for standardization runs over the measured mile, and as the landing place of passenger steamers carrying summer excursions from Boston to the town, which has a considerable floating population at that season.

(*a*) There are a considerable number of small pile piers suitable for use as landing places for rowboats, fishing motor boats and dories, and small sailing craft. There are several cold-storage plants where bait and fish are kept frozen. In front of the town the water is shoal, the slope of the bottom being very flat, but the harbor itself is deep, easily entered by the deepest draft vessels afloat, and affords safe anchorage in heavy weather.

To accommodate passengers and freight traffic, one long pier out to 9 feet depth at mean low water is maintained. While apparently open free to the Navy and to small boats, the pier is owned by the New York, New Haven & Hartford Railroad, and would probably be available for general shipments in quantity only by special contract. So far as known no such contracts exist at present.

(*b*) The New York, New Haven & Hartford Railroad has a track the full length of the long wharf, but it is improbable that there is any contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination. There appears to be no reason for such interchange at this point.

(*c*) A good highway runs along the water front and to the wharf; it is adequate for all traffic that would require hauling by wagon, truck, or passenger vehicle.

(*d*) Water terminals adequate for the needs of the town exist as described above.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

REPORT OF COL. JOHN MILLIS, CORPS OF ENGINEERS, IN CHARGE OF THE NEWPORT, R. I., DISTRICT.

[The letters (a), (b), (c), and (d) indicate subheadings as shown by footnotes.]

HYANNIS HARBOR, MASS.

(a) Hyannis Harbor was built as a harbor of refuge and has little commerce of its own. There is one wharf, built by the New York, New Haven & Hartford Railroad Co., but at present the tracks have been removed and teaming on it prohibited. An individual now leases it and supplies boats with gasoline and conducts some business in fish. It is believed no wharfage is charged at this wharf.

(b) No physical connection exists between the water terminal and railroad.

(c) A fairly good highway reaches the foot of the wharf.

NANTUCKET HARBOR, MASS.

(a) The water terminals of Nantucket Harbor are located along the westerly side of the harbor in front of the town. The wharves are five in number, one of which is in a very dilapidated condition; one is occupied by the New Bedford, Marthas Vineyard & Nantucket Steamboat Co., one of the branches of the New England Steamship Co. The other wharves are owned by private parties and used mostly by the owners in their business, chiefly coal, lumber, and ice. These wharves, when not occupied by the vessels of their owners, are open to the use of others upon such agreements as may be made. Excepting at the steamboat wharf, where the water has been deepened to 12 feet at mean low water by the steamboat company, the depth of water is not more than 6 or 7 feet.

(b) The only railroad on Nantucket Island is a short line about 7 miles long which passes close to the foot of all the wharves. There are no actual physical connections between the water terminals and the railroad.

(c) The highway to the steamboat wharf is fairly good; to the others poor.

WOODS HOLE CHANNEL, MASS.

(a) There are four wharves in Great Harbor, Woods Hole, and one in Little Harbor. Of the wharves in Great Harbor, one is owned by the United States, and is used by the United States Commission of Fisheries and the revenue marine; two are owned by individuals,

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.
(d) Necessity for water terminals.

one of which is used in private business, chiefly coal and lumber and fish, and the other private wharf does not appear to be used much. The fourth wharf is owned by the New York, New Haven & Hartford Railroad Co., and is used as the landing place of the New Bedford, Marthas Vineyard & Nantucket Steamboat Co. for the transfer of freight and passengers from boat to rail. The use of the railroad wharf is free to vessels delivering or receiving freight for transportation by rail or the steamboat company. The use of the other wharves, when not occupied by vessels of the owner, is subject to agreement. The wharf in Little Harbor is owned by the United States and is used by the lighthouse service.

(*b*) The railroad tracks of the New York, New Haven & Hartford Railroad Co. extend onto the wharf owned by that company, but to none of the other wharves. A contract exists between the New Bedford, Marthas Vineyard & Nantucket Steamboat Co. and the New York, New Haven & Hartford Railroad Co. for interchange of traffic by prorating.

(*c*) Excellent highways extend to all the wharves, excepting one private wharf.

NEW BEDFORD AND FAIRHAVEN HARBORS, MASS.

(*a*) The wharves in New Bedford and Fairhaven Harbors may be divided into two groups, those situated south of the New Bedford and Fairhaven Bridge and on Fish Island and those north of the bridge. The wharves of New Bedford are on the west side of the harbor and Acushnet River, and from the most southerly to the most northerly wharf extend about 8,500 feet. The wharves at Fairhaven, Mass., are on the east side of the harbor, south of the New Bedford and Fairhaven Bridge, and extend about 4,750 feet to the most southerly wharf. On the New Bedford side of the harbor there are 15 wharves, of which six are for general use and open to all water carriers on the same terms, eight used for private business purposes, and one unused. On Fish Island there are three wharves, all of which are used for private business. On the Fairhaven side of the harbor there are five wharves; two of these, the Town Wharf, the most northerly, and the Tack Factory Wharf, the most southerly, are unused; one, the Central Wharf or Railroad Wharf, serves as the terminus of the Fairhaven branch of the New York, New Haven & Hartford Railroad and of a ferry crossing the harbor to New Bedford; the other two wharves are used mainly for storage and moorings for yachts, whale ships, etc., on terms of agreement with owners. The efficiency of these wharves seems to be fairly good for the purposes for which they are used, although handicapped to some extent by lack of depth of water in the unimproved parts of the harbor.

(*b*) Of the wharves of New Bedford, two, those of the New Bedford, Marthas Vineyard & Nantucket Steamboat Co. and the New England Steamship Co., have physical connection with the New York, New Haven & Hartford Railroad Co., with contracts for inter-

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

hange of traffic by prorating. The wharves of the Philadelphia & Reading Coal Co., the Garfield & Proctor Coal Co., and the Wamsutta Cotton Mill have physical connection with the railroad, but no contracts for the interchange of traffic.

(c) Improved and adequate highways have been constructed to all of the wharves, except the unused wharf belonging to the New York, New Haven & Hartford Railroad Co., in New Bedford.

TAUNTON RIVER, MASS.

(a) Taunton River rises in Norfolk County, Mass., and empties into Mount Hope Bay at Fall River. The portion of the river which has been improved lies above Dighton, about 7½ miles above Fall River; it has a narrow and crooked channel, with 12 feet depth of water at mean high water available to Briggs Shoal (The Needles) and 11 feet depth of water at mean high water from there to Weir village, a suburb of Taunton, the head of navigation. The water terminals now available are mainly at the towns of Somerset, Dighton, North Dighton, and Weir. Remains of several "landings," which in former days served small settlements lying back from the river, may be seen at low water. The present wharves are, in general, dry-laid stone walls parallel to the river, founded, in some cases, on pile foundations driven to the surface of the ground, and some simply resting on the river bank and protected by pile fenders. One wharf at Weir consists of wooden sheet piling backed with concrete laid in an old stone wall, the whole backfilled with rock.

(b) None of the wharves on the river have any physical connection with the Boston-Newport branch of the New York, New Haven & Hartford Railroad, the only steam railroad serving this territory, although many of the manufacturing plants along the river have spurs from the railroad running into their yards. At Weir village the electric railway parallels the river and, at approximately 100 feet from the bank, extends to the southern end of the town, passing the city property referred to below. A considerable freight traffic is in process of development by means of the electric express with Boston and intermediate points. The freight from Boston is mainly "package freight," but some of the manufacturers at Weir are shipping part of their product out by this route, and contracts are now under consideration, it is stated, in which the shipments will be estimated in tons daily. This electric road is said by representatives of the Taunton Business Men's Association to be independent of the New York, New Haven & Hartford Railroad Co.'s interests. The chief water-borne freight to Taunton is, at present, coal, with small consignments of molding sand and a little lumber. The coal is handled chiefly by one company, which maintains a subsidiary transportation company at Fall River, doing nearly all the towing on the river. Other shipments are made in small barges or schooners, it being a rare occurrence for a vessel of any size to risk a second trip up the river to Taunton. No regular "water carriers" are now

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.

operating on the river. The Dyer Transportation Co., of Providence, according to information received from its agent at Fall River, has now under consideration the securing of terminal sites on Taunton River, and a transportation company is, according to statements of members of the Taunton Business Men's Association, being quietly but energetically promoted, proposing to use as a terminal a strip of land belonging to the city of Taunton located at the south end of Weir, near the Taunton Electric Co.'s works, part of which has a stone-walled wharf, with 7 to 10 feet of water at mean high water alongside. The southern part of this property is now unimproved, but the whole of it, somewhat over 400 feet long, is available for a public wharf.

(*c*) The highways to all of the practicable water terminals on the river are in good condition and, as the country on both banks is fairly level, the grades are good.

FALL RIVER HARBOR, MASS.

(*a*) All of the water terminals lie on the eastern side of Mount Hope Bay, the greater number of them close to the line of the Newport-Boston branch of the New York, New Haven & Hartford Railroad Co., although few of them have any physical connection with that railroad. The prevailing type of wharf is a stone-walled structure built on pile foundations, projecting from the shore, or built along the shore line, the walls being filled in with loose rock or earth; the walls generally are of granite blocks; a few of them have a pile extension along the face. Many of these wharves are badly in need of repair, and few of them have any great depth of water alongside. With the single exception of the City Wharf, in the upper part of the harbor, the practicable water terminals are owned, or controlled under lease, by private interests, and their use restricted to those interests. The wharves controlled by the various coal companies are equipped with more or less efficient mechanical handling plants; one of the lumber companies has a fairly efficient unloading system; the other wharves are entirely devoid of any modern appliances for rapid and economical handling of freight. The City Wharf, with 10 to 5 feet of water along its south side and 8½ feet along its north side, is a filled stone wharf inclosing a sewer outfall. It is open to use by all water carriers, a fixed rate per unit of merchandise or wharfage rate per diem being charged. The Dyer Transportation Co., operating two small steamers between Fall River and Providence and Bristol, occupying a leased wharf, has a traffic arrangement with the Merchants & Miners Transportation Co. by which through bills of lading are issued for freight passing through Fall River to or from points south and west. All such freight is transferred by truck over very inadequate roads.

(*b*) The only water terminals on Mount Hope Bay having physical connection with the New York, New Haven & Hartford Railroad Co., which is the only steam railroad serving this territory, are the Globe Wharf of the Staples Coal Co., the wharf of the Merchants & Miners Transportation Co., and the two wharves of the New

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

England Steamship Co., all restricted to the exclusive use of those interests. From the best obtainable information, no contract for the interchange of traffic is made by the railroad, except perhaps with the Merchants & Miners Transportation Co., which company is not locally believed to be a competitor of the New England Steamship Co.. the marine branch of the New York, New Haven & Hartford Railroad Co.

(c) The direct highway giving access to the New England Steamship Co.'s terminals and the Dyer Transportation Co.'s terminal, foot of Central Street, are in very poor condition and the grades very heavy; indirect, circuitous access to these points is over well-paved streets, with better grades along the water front, but service to the outlying district eastward is confronted with heavy grades before reaching the commercial center of the city of Fall River. North of Central Street, Davol Street, running along the water front for half a mile, has a granite block roadway in fair condition, very infrequently cleaned, and without proper sidewalks, and access to the wharves generally is very inadequate; access to the City Wharf is over the earth filling protecting the city sewer. A movement is now under way by the Chamber of Commerce of the city of Fall River to secure legislation for the extension and improvement of the City Wharf and the construction of a spur from the New York, New Haven & Hartford Railroad across Davol Street at grade to the wharf.

(d) There is room for additional improvements in the way of terminal development, but in general the existing terminals are adapted to the extent and class of business to be accommodated, and improvements to meet growing demands are in contemplation.

PAWTUCKET RIVER, R. I.

(a) Pawtucket River extends 4¼ miles from India Point, Providence, to Division Street Bridge in Pawtucket, the practical head of navigation. The wharves along the river are mainly at the lower end in Providence, at the upper end in Pawtucket, and about midway at Phillipsdale. With the exception of the wharves at Phillipsdale and in East Providence, railroads do not approach very near the river, and on account of the rather high ground back from the river they are not readily accessible. The traffic on the river is chiefly local, supplying a territory of great industrial activity in the immediate vicinity of the river, which it is stated will be materially enlarged by the use of motor trucks. There are 19 wharf properties along the river, of which 18 are for private business purposes, several of them open to use by others than the owners upon terms of agreement and at times when they are not in use for customary purposes. Nearly all of this wharfage is extensively used. At the lower end of the river, there is one coal wharf belonging to the New York, New Haven & Hartford Railroad Co., which is open to all carriers of coal on the same terms, namely, 20 cents per ton for transfer to cars and 1 cent per ton for weighing. The general efficiency of these terminals is

(a) General location and description.
(c) Connection with highways.
(d) Necessity for water terminals.

estimated as 1 excellent, 2 very good, 14 good, 1 fair, and 1 not used for commercial purposes at all.

(*b*) Physical connection exists between four of these water terminals and the railroad but with no prorating contracts for forwarding freight.

(*c*) Improved and adequate highways have been constructed at 17 of the 19 wharves.

PROVIDENCE RIVER AND HARBOR, R. I.

(*a*) Providence Harbor has a water frontage of about 6 miles, of which about 4¾ miles have been improved to some extent. The wharves along Providence River south of the harbor are at points a considerable distance apart and with one exception are used for pleasure and excursion purposes. All sides of the harbor are provided with railroad tracks and where actual physical connection with the wharves does not exist it could be generally accomplished with little difficulty. Within the 6 miles above referred to, there are 68 wharves, mostly in fairly good condition, though a few are in very poor condition. Of these wharves 7 are open to all on equal terms, the business of 2 belonging to the New York, New Haven & Hartford Railroad Co. being almost exclusively the handling of coal for transfer from water carriers to cars destined for interior points in New England; 60 of the wharves are used for private business purposes; 8 of them are open to the use of others than the owners upon terms of agreement and at times when not in use for customary purposes, and at some others vessels are allowed temporarily to tie up by courtesy; 1 wharf is used only as a storage yard for freight cars. Nearly all of this wharfage is extensively used and a large number of vessels, mainly seagoing coal barges, anchor in the harbor. The terms upon which water carriers use wharves open to all, for the two large items of coal and lumber, are, for coal 20 cents per ton for transfer to cars and 1 cent per ton for weighing; for lumber, 70 cents per thousand feet for discharging. The general efficiency of the 68 wharves, based on the purposes for which they are used and appliances available, is estimated as follows: Excellent, 5; very good, 5; good, 24; fair, 16; poor, 18. In addition to the above wharves, the city of Providence is building a quay wall about 2,900 feet long which will have a depth of 25 feet of water alongside of it and form an important addition to the terminal facilities.

(*b*) Physical connection exists between the water terminals and railroads serving the locality in the case of 35 of these wharves. From 3 of these prorating contracts or agreements exist for forwarding freight; from the others freight is only billed at published tariffs.

(*c*) Improved and adequate highways have been constructed to 48 of the 68 wharves.

(*d*) There is room for additional improvements in the way of terminal development, but, in general, the existing terminals are adapted to the extent and class of business to be accommodated, and improvements to meet growing demands are in contemplation.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

NEWPORT HARBOR, R. I.

The wharf line lies on the easterly side of Newport Harbor. Beginning at the northerly wharves, this line extends southerly about 1,000 feet, thence easterly about 1,500 feet, and thence southerly about 4,000 feet.

NEW ENGLAND STEAMSHIP CO.'S WHARF.

(*a*) The most northerly wharves covering the 1,000 feet referred to first above are owned or controlled by the New England Steamship Co. and the New York, New Haven & Hartford Railroad Co. There is about 18 feet depth of water at these wharves, which can be reached from the ocean, and they are well protected in time of storm. There are three wharves in this group. The two most northerly are used entirely in connection with the repair plant of the New England Steamship Co. The southerly wharf is used for transportation purposes, for the transfer of freight and passengers from land to water carriers and the reverse. It is a private wharf in the sense that it is not open to the use of all carriers on equal terms. Vessels bringing freight or passengers to be forwarded by the lines operated by the lessees of the wharf are allowed to use it free of any charge for wharfage. Other vessels would only be allowed to use the wharf upon such conditions as might be authorized by the management of the New England Steamship Co., the headquarters of which is New Haven, Conn. This wharf is leased by the New England Steamship Co. from the Trustees of Long Wharf, a very old local organization dating back to colonial times.

(*b*) The tracks of the New York, New Haven & Hartford Railroad Co. run onto both the southern wharf and the middle wharf of the three wharves. The only prorating contract in connection with traffic on this wharf is one providing for freight to be forwarded to and received from Jamestown, on Conanicut Island, Narragansett Bay, and involves very little freight movement.

(*c*) A good paved highway has been constructed to the southerly wharf, and it is used for nearly all the local freight traffic.

CITY WHARF.

(*a*) About midway on the 1,500-foot east-and-west reach of the wharf line the city of Newport owns a wharf. There is about 10-foot depth of water at this wharf, and it is used largely for city purposes, receipt and storage of paving blocks, gravel, sand, etc., and for loading swill into scows to be towed to sea. The wharf is open to the use of all vessels when there is room for them upon the payment of certain fixed rates of wharfage.

(*b*) There is no physical connection between this wharf and a railroad line.

(*c*) A good paved highway leads to the wharf. Two small landing stages are maintained by the city for public landing places from small boats.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

OTHER WHARVES.

(*a*) The principal wharf front of the city, extending about 4,000 feet in a north-and-south direction, has on it about 27 different wharf properties, about two-thirds of which are used for private business and are not used by the public to any great extent, and then only on sufferance when not occupied by vessels consigned to the owners or lessees. Of the other wharves, one belongs to the United States and is used for the landing of boats from the naval stations and forts; one is used by the Jamestown Ferry Co.; two are used by yacht clubs; and five are used by the public upon terms of agreement between the vessel owner and wharf owner.

(*b*) There are no railroad connections with these wharves, excepting that in one case the rails of a trolley-car line extend to the wharf, chiefly for excursion passengers.

(*c*) These wharves are but a short distance from the main business street of the city and are generally connected with it by fairly good roadways, paved in some cases.

(*d*) There is room for additional improvements in the way of terminal development, but, in general, the existing terminals are adapted to the extent and class of business to be accommodated, and improvements to meet growing demands are in contemplation.

BLOCK ISLAND HARBOR, R. I.

(*a*) There is one wharf on the south side of the so-called inner basin built by the United States and transferred to the town. This is a public wharf at which there is no wharfage charged, and practically all of the water-terminal business of this harbor is transacted over this wharf, excepting the summer-excursion business, which is mostly carried on at a wharf outside of the inner basin owned by the Providence, Fall River & Newport Steamboat Co.

(*b*) There is no railroad at Block Island.

(*c*) The town wharf is reached by an adequate highway.

GREAT SALT POND HARBOR, BLOCK ISLAND, R. I.

(*a*) There is one wharf on the southeasterly side of the pond that is used for the purpose of landing and receiving freight and passengers and several small private wharves around its sides. These latter are very small affairs owned by the owners of the land upon which they abut and used chiefly for handling fishing gear and other purposes connected with the fishing industry. The principal wharf is owned by the New England Steamship Co. and portions of it are leased to other companies for landing purposes. The privilege of erecting fish houses is leased to certain fishermen. Wharfage is collected from vessels landing there, which is permitted only when it does not interfere with the use of the wharf by regular lessees.

(*b*) There is no railroad at Block Island.

(*c*) The wharf is reached by an adequate highway.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways
(*d*) Necessity for water terminals.

REPORT OF MAJ. G. B. PILLSBURY, CORPS OF ENGINEERS, IN CHARGE OF THE NEW LONDON, CONN., DISTRICT.

[The letters (a), (b), (c), and (d) indicate subheadings as shown by footnotes.]

PAWCATUCK RIVER.

The Pawcatuck River is under improvement with a view to securing a channel of 10 feet depth to the town of Westerly. A maximum draft of 8 feet at mean low water can now be carried to that point.

(a) The principal wharves contiguous to this waterway are at the towns of Westerly and Pawcatuck, near the head of navigation, and consist of bulkheads and pile wharves on either side of the river, paralleling the channel. All water shipments to and from the towns pass over these wharves. While none of these are equipped with elaborate handling devices, cargoes can be handled with reasonable efficiency. Several are open to all water carriers on equal terms, special agreements being made in each case.

(b) None of the docks have physical connection with a railroad, and no prorating agreement exists between rail and water carriers.

(c) No paved roads have been constructed to any of the wharves, but existing roads are thought to be adequate.

(d) The existing terminals are thought to be sufficient for the present traffic.

STONINGTON HARBOR, CONN.

Stonington Harbor has been improved by the General Government by the construction of breakwaters to protect its entrance. The prevailing depth of the harbor is about 12 feet at mean low water.

(a) The wharves at Stonington are situated along the water front of the town, on the east side of the harbor. They include two large pile wharves owned by the New York, New Haven & Hartford Railroad Co. and a number of smaller wharves under private ownership, most of which are constructed of stone. There is no public terminal, but the Pendletown Wharf, one of the largest of the private wharves, is reported by the owner as open to the public on equal terms, on the payment of wharfage at one-half cent per ton, vessel measurement. A line of steamers formerly ran between Stonington and New York and used the railroad wharves as its terminus. This line has been discontinued. These wharves are now occasionally used for laying up boats of the New England Steamship Co. temporarily out of commission and are kept in repair for emergency use. Local fishermen deliver their fish at these wharves.

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.
(d) Necessity for water terminals.

(*b*) The railroad wharves only have physical rail connections. No prorating agreements exist between rail and water lines.

(*c*) No paved highways have been constructed to any of the terminals, but existing highways are thought to be adequate.

(*d*) The commerce of Stonington has declined in recent years, and wharfage facilities appear to be ample for the present traffic.

MYSTIC RIVER.

The channel in the Mystic River has a project depth of 15 feet and width of 100 feet. The depth has somewhat deteriorated, but funds are in hand for its restoration.

(*a*) The wharves contiguous to Mystic River are located at the town of Noank, on the west side of the river near its mouth, and at Mystic, at the head of navigation. At Noank the terminal facilities comprise a town wharf of the usual pile construction and several wharves in private control. The town wharf is not provided with unloading facilities. It is maintained in good condition by the town authorities, and its use is free to the public. Practically all the water-borne traffic of the town, except that of one large shipbuilding company, which owns its own wharf, passes over the town dock. This shipbuilding company reports its wharf open to water carriers on equal terms at a rate of $5 per day, but there is no demand for its use. At Mystic the wharves are wooden structures, lining both sides of the waterway. There is one wharf in the upper part of the town that is reported by the owner as open to use by all water carriers on equal terms, the terms being 5 cents per ton for coal, the usual commodity handled. Coal for three manufacturing concerns is received over this wharf. Two other wharves in the middle of the town are reported by their owners as open to use by all water carriers on equal terms, one at $2 per day for vessels up to 200 tons, the other subject to agreement. No other wharves are so reported. None of the wharves at Mystic are equipped with cargo-handling devices other than a simple mast and boom.

(*b*) None of the wharves have physical rail connections, and no prorating agreements exist between land and water carriers.

(*c*) No paved highways have been constructed to any of the wharves, but existing highways are regarded as adequate.

(*d*) While the demand for a public wharf at Mystic is not great, yet such a wharf, centrally located, would be of benefit to small shippers and would tend to increase the use of the waterway.

NEW LONDON HARBOR.

New London Harbor has a natural depth of 26 feet or more in the main channel. A channel with a depth of 23 feet skirting the water front of New London has been provided by the General Government.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*a*) The principal docks are located along the New London water front and on the opposite shore at Groton. Nearly all are of the usual type of pile structures, separated by slips, but the Central Vermont Railway Co. has a large stone pier. There are two modern coal-handling plants in use on these wharves. The principal waterborne traffic of the locality, other than package freight on the regular steamboat lines, is received and shipped by parties owning or leasing their own wharves. While there are no public commercial wharves, no difficulty is experienced in obtaining the use of a wharf as required, the terms being the subject of special agreement.

(*b*) Physical connection exists between the Central Vermont Wharf, New York, New Haven & Hartford Wharves, and the New London Coal Co.'s Wharf; and at the Norwich & New York Propeller Co.'s Wharf at Groton there is physical connection with an electric road. Prorating agreements exist between the New York, New Haven & Hartford Railroad and the Central Vermont Railway and their subsidiary steamship companies only.

(*c*) No paved roads have been constructed to any of the wharves, but existing roads are thought to be adequate.

(*d*) The State of Connecticut has appropriated $1,000,000 for providing additional terminal facilities in New London Harbor, provided that such expenditure can be made to the commercial advantage of the State. Surveys preliminary to construction are now in progress.

THAMES RIVER, CONN.

The project for the improvement of the Thames River provides for a channel 200 feet wide, with a depth of 20 feet to Allyns Point, and of 14 feet from Allyns Point to Norwich, the head of navigation. This channel has been secured and maintained.

(*a*) The terminal facilities on the river comprise an extensive coal-handling plant at Allyns Point, wharves along the water front of Norwich, and wharves at various industrial plants and at other points along the river. The Navy Department has a coaling station on this waterway. Most of the wharves are of the usual pile construction, but some of the older structures are of stone. Several are reported by their owners as open to use by all water carriers on equal terms, but the terms and conditions of use are not quoted. A public wharf at Norwich affords accommodation to smaller craft, but is not adapted to commercial use. The greater part of the waterborne freight, other than that carried by the regular transportation lines, is received and shipped by dealers or manufacturers owning or leasing their own wharves.

(*b*) A number of wharves, owned or leased by the railroad lines or by large dealers, have physical rail connections. Prorating agreements exist between the New York, New Haven & Hartford Railroad Co. and its subsidiary, the New England Steamship Co., only.

(*c*) No paved highways have been constructed to any of the wharves, but existing highways are regarded as adequate.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*d*) The existing terminals are thought to be sufficient for the present traffic. A public terminal for commercial water-borne traffic at Norwich would, however, be a convenience to small shippers, and would tend to increase the use of the waterway by such parties. The exact location of such a terminal should be determined by the local authorities.

CONNECTICUT RIVER ABOVE HARTFORD.

While this river has been under improvement by the General Government in times past, no general project is as yet authorized by Congress. Navigation is practically limited to excursion and pleasure boats in the reach above the Enfield Dam.

(*a*) No commercial wharves exist except a small crib pier at the city of Springfield and landings for pleasure boats and excursion steamers. The commercial use of these wharves is trifling.

(*b*) None of the wharves have physical connection with rail lines. and no prorating agreements exist.

(*c*) When wharves for commercial use are established the construction of adequate highways will be necessary.

(*d*) Should Congress authorize the improvement of this section of the river in such manner as to render commercial navigation practicable the question of terminal facilities at Springfield and Holyoke will be most important. It is thought that the determination of number and appropriate location of these terminals should be deferred until that time.

CONNECTICUT RIVER BELOW HARTFORD, CONN.

The Connecticut River below Hartford is under improvement with a view to securing a channel 12 feet deep at mean low water. The project has not been completed, but depth of 11 feet is maintained by annual dredging.

(*a*) The principal wharves on the Connecticut River below Hartford are located at Hartford, Wethersfield, Glastonbury, South Glastonbury, Cromwell, Middletown, Middle Haddam, Higganum, East Haddam, Hadlyme, Chester, Deep River, Essex, Lyme, and Saybrook Point. Nearly all are substantial stone bulkheads solidly filled with earth and provided with fender piles along their faces. Open pile structures are not used on account of damage from ice and freshet. In nearly all cases landing is made at the outer end or face of the wharf, the vessel lying parallel to the direction of the stream. At most wharves the depths alongside are as great as the project depth of the channel. Freight-handling facilities are usually mast and boom derricks, in some cases equipped with steam power, and in others operated by horses. There are publicly owned wharves at Hartford and Cromwell. A wharf at Chester appears to be owned by the municipality, but the ownership could not be certainly ascertained. There are privately owned wharves open to all water carriers on equal terms at Hartford, Wethersfield, Glastonbury, Gilder-

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

sleeve, Cromwell, Middletown, Middle Haddam, Higganum, East Haddam, Hadlyme, Deep River, Essex, and Saybrook Point. The usual rate for wharfage is 10 cents per long ton on coal and 12 cents per ton on general merchandise. Detailed statements concerning the various wharves open to all water carriers on equal terms are as follows:

HARTFORD.

General Wharf, at foot of State Street, controlled by the Connecticut River Bridge & Highway Commission; 350-foot frontage; terms not reported, but it is understood that no charges are made.

Municipal Wharf, leased from the Colts Fire Arms Co.; stone and concrete substructure affording a frontage of 150 feet at low stages, and concrete superstructure affording frontage of 100 feet at high stages of the river; equipped with derrick and steam hoisting engine on movable car, and with storage warehouse having about 7,500 square feet of floor space; terms stated to be 10 cents per ton of actual lading for cargo and 1½ cents per ton for actual lading of vessel; 15 cents per thousand b. m. for lumber and 3 cents per thousand feet for vessel; stone scows, $5.

Gas company's wharf, owned by Hartford Gas Light Co., 140-foot frontage, equipped with small derrick operated by horses; terms same as stated for Municipal Wharf, subject to owner's convenience.

WETHERSFIELD.

Wharf owned by the Wethersfield Wharf Co., stone bulkhead, 140-foot frontage on the river; equipped with mast and boom, but no power; terms not reported.

GLASTONBURY.

Merchants Wharf, owned by Merchants Wharf Co., 80-foot frontage; equipped with coal hoist, trestle, cars, and hopper bins; terms said to be 10 cents per ton for coal and 12 cents for general merchandise.

SOUTH GLASTONBURY.

South Glastonbury Coal Wharf, owned by the Hartford & New York Transportation Co.; 100-foot frontage; no freight-handling facilities; terms as above.

CROMWELL.

Middle or Town Wharf, owned by the town of Cromwell; 90-foot frontage; equipped with derrick and steam hoist; open to the public without charge.

MIDDLETOWN.

City Wharf, owned by the Hartford & New York Transportation Co.; frontage of about 60 feet on the river; equipped with mast and boom derrick operated by horse; terms, 10 cents per long ton for coal and 12 cents for general merchandise.

Railroad Wharf, owned by the New York, New Haven & Hartford Railroad Co.; 775-foot frontage; no freight-handling devices; terms unknown.

MIDDLE HADDAM.

Upper Wharf, ownership unknown; 75-foot frontage on the river; no freight-handling devices; it appears probable that no charges are made.

Cobalt Landing, owned by the Tibbals Oakum Co.; 90-foot frontage; no freight-handling facilities; terms unknown.

HIGGANUM.

Higganum Upper Wharf, owned by D. & H. Scoville; 90-foot frontage; equipped with horse-operated derrick; terms stated to be the same as those in general use.

Higganum Lower Wharf, same owners; 200-foot frontage; no freight-handling facilities and very little used.

EAST HADDAM.

Goodspeeds Landing, three small wharves affording a combined frontage of about 200 feet; terms not reported.

HADLYME.

Upper Wharf; frontage, 120 feet; no unloading facilities; terms not reported.

CHESTER.

Chester Creek Wharf, probably owned by town of Chester; 170-foot frontage; equipped with mast and boom derrick operated by horse; terms not known.

DEEP RIVER.

Deep River Wharf, owned by A. W. Thurlough, 100-foot frontage; no freight-handling facilities; terms not reported.

ESSEX.

There are several wharves at Essex open to the public, but all are in very poor condition and unsafe for use.

LYME.

Hall's Wharf, about 80-foot frontage; no unloading facilities; terms not reported.

SAYBROOK POINT.

New York, New Haven & Hartford Railroad Co. Wharf, frontage about 650 feet; about 80 feet of the south end of this wharf is set aside for public use and is so maintained by the town. This portion is not equipped with freight-handling devices and no wharfage is charged.

A large part of the passenger and freight business on the river is now conducted by the Hartford & New York Transportation Co. This company owns and maintains wharves at various points on the river. As a general rule these wharves are for the exclusive use of the company, but, as noted above, at two points the company maintains additional wharves open to the public on equal terms.

(*b*) Physical connection exists between wharves at Hartford, Middletown and Saybrook Point and the New York, New Haven & Hartford Railroad Co. At Hartford the tracks run along the rear of most of the wharves and in many places within about 100 feet of the wharf face, but there are at present no facilities for handling freight directly from vessels to cars without reloading, except at the southernmost wharf owned by the Hartford Electric Light Co. It is understood that at Middletown little use is made of the rail and water connection. At Saybrook Point a considerable amount of freight is so transshipped. Prorating agreements exist between the New York, New Haven & Hartford Railroad Co. and the Hartford & New York Transportation Co. only.

(*c*) Access to most of the wharves along the river is by ordinary earth roads, some in good condition and others in poor condition. Improved roads have been constructed to the wharves at Hartford only.

(*d*) The existing terminal facilities appear to be sufficient for the present traffic. In the belief that the available public facilities at Hartford were inadequate, that city was granted, in 1909, the right to secure water-front lands by condemnation for the purpose of providing public terminals. Under this authority the present municipal wharf was leased. The duration of the act is for 10 years, but the chairman of the rivers, harbors, and bridges commission of the State is of the opinion that it will be made permanent before it lapses.

EIGHTMILE RIVER, CONN.

A channel 8 feet deep and 75 feet wide has been provided from Hamburg, at the head of navigation, to the Connecticut River.

(*a*) The terminal facilities on the Eightmile River are limited to two wharves, both at the town of Hamburg. One of these is reported by its owners as open for use by all water carriers on equal terms, at rates not stated. This wharf is a solid pier, faced with stone and filled with earth, and has a frontage of 285 feet on one side and 175 feet on the other. It is used chiefly for shipping native timber, railroad ties, etc., in schooners.

(*b*) Neither of the wharves have rail connections and no prorating agreements exist between rail and water carriers.

(*c*) Access to the wharves are by ordinary country roads.

(*d*) In view of the small amount of business no further terminals appear to be necessary.

BRANFORD HARBOR, CONN.

The project for the improvement of Branford Harbor provides for a channel 8½ feet deep and 100 feet wide. This channel has been secured and funds are available for its maintenance.

(*a*) The terminal facilities of Branford Harbor are limited to three wharves near the head of the harbor. The largest of these is

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

owned by the Malleable Iron Co. It consists of a sheet-pile bulkhead with pile apron and has a water frontage of about 750 feet. It is equipped with steam unloading derricks and is used to a large extent by the owners. The other two are small pile structures, one of which is out of use. The owners of two wharves in use report that they never refuse to allow the use of their wharves to any boats which have requested the privilege. There is, however, practically no commercial traffic in the harbor except that consigned to the wharf owners.

(*b*) None of the wharves have physical rail connections, and there are no prorating agreements between land and water carriers.

(*c*) There are no public highways leading to the wharves. Private ways, though not paved, are regarded as adequate.

(*d*) There appear to be no small shippers in the vicinity who would be benefited by the construction of a public wharf.

NEW HAVEN HARBOR, CONN.

The main channel has been improved to secure a depth of 20 feet at mean low water. The various subsidiary channels have been improved to secure depths ranging from 8 to 15 feet. Three anchorage basins, ranging in depth from 15 to 20 feet, have also been excavated.

(*a*) The wharves contiguous to New Haven Harbor border the head of the main channel and the adjacent 15-foot anchorage basin, and lie along the various subsidiary channels. The wharves bordering the head of the main channel and the adjacent basin afford an improved water frontage of about 3,000 feet, on the northwest side of the harbor, adjacent to one of the most important business and manufacturing districts of New Haven. The terminals in this section are in the form of piers, either solid filled or open, ranging up to 2,300 feet in length, and separated by slips. Those open to the public are the City Wharf and five piers owned by the New York, New Haven & Hartford Railroad Co. The City Wharf is a public terminal owned by the municipality. It is an open-pile structure, 80 feet wide, constructed in 1901 at a cost of nearly $20,000. The available depth along one side is 12 feet at mean low water for a distance of 370 feet; on the other side the bottom is bare at low tide. It is equipped with a derrick. Power is supplied by engine, available for hire at $10 per day. The wharf is open to all water carriers under charges fixed by a somewhat elaborate printed schedule. It is much used by parties not controlling wharves of their own, the amount of freight handled being estimated at from 8,000 to 10,000 tons per year. The five piers owned by the New York, New Haven & Hartford Railroad Co., known as Belle Dock, Middle Dock, Pocket Dock, Heatons Wharf, and Canal Wharf, respectively, afford a total dockage length of over 12,000 feet, not all of which has, however, sufficient depth for larger vessels. At Pocket Dock vessels of 20-foot draft can be accommodated; Heatons Wharf is used chiefly by vessels out of commission; Middle and Pocket Docks are used exclusively for handling

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

coal, and are equipped with modern appliances for this purpose, having an aggregate capacity of 4,500 tons per day. Belle Dock and Canal Wharf are also used largely for receiving the same commodity, but at both of them other freight, particularly lumber, is also handled; and at Belle Dock tugs are supplied with coal and water. The total freight received at these four wharves aggregates about 365,000 tons per year, of which about 80 per cent is coal. These five wharves are open to all water carriers on equal terms under a published schedule of rates, which are substantially the same as those in force at the City Wharf. The coal wharves are, however, obviously not adapted to general public use. There appears to be a general impression among shippers that while facilities are afforded for the receipt of freight at suitable wharves, shipment is discouraged, but it is possible that this impression is due to difficulties in arranging for such shipments on account of their rarity, shipments in cargo lots being unusual.

In addition to the City Wharf and the railroad wharves, there are several privately owned wharves in different portions of the harbor which are reported by their owners as open to all water carriers on equal terms, and a number which are, in fact, open to all, although not so reported by their owners. The use of nearly all of these is subject to the owner's convenience. At some of the smaller no charge is made; at others the charges are not reported, but are understood to be made by special agreement. Besides these wharves there are a large number owned or leased by manufacturers and dealers for their exclusive use.

(*b*) Physical connection exists between the tracks of the New York, New Haven & Hartford Railroad Co. and Belle Dock, Middle Dock, Pocket Dock, Canal Wharf, two privately used wharves of the railroad company, and Steamboat Wharf. Steamboat Wharf is controlled by the New England Steamboat Co., a subsidiary of the railroad, and is used exclusively by the vessels of that company. At all of these wharves freight can be handled directly from vessel to car, and much freight is so transferred. None of the other wharves available to the public have railroad connections. There are, however, several other wharves, used exclusively by their owners, which are connected by an industrial railway with the tracks of the New York, New Haven & Hartford Railroad Co. Prorating agreements as to freight exist between the New York, New Haven & Hartford Railroad Co. and its subsidiary, the New England Steamboat Co., only.

(*c*) The highway giving access to the City Wharf is unpaved for a distance of about a quarter of a mile, and this approach is frequently in very poor condition. Three only of the railroad wharves can be used for transferring freight from vessels to teams, and these are accessible by paved streets. Of the other private wharves available to the public, one only is accessible by a paved street, the others by unpaved streets and roads.

(*d*) The existing public terminals are believed to be somewhat inadequate. The facilities afforded by the City Wharf are limited.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

The only other wharves of importance open to the public are owned by the railroad. From the nature of their equipment most of these are suitable for certain classes of freight only; none are convenient for the transfer of freight to and from drays; and none are adapted to outward shipments. It is thought that the smaller shippers would be benefited, and the commerce of the harbor developed, if the present City Wharf were enlarged, equipped with good freight-handling equipment, and given rail connections.

MILFORD HARBOR, CONN.

In a channel dredged by the United States, draft of 10 feet may be carried from the outer harbor up to Merwin's Wharf, a distance of about 3,100 feet, and thence draft of 6 feet may be carried to the Town Wharf, a distance of about 2,900 feet farther.

(*a*) The principal wharves contiguous to this waterway are Merwin's Wharf on the easterly side of the harbor at the head of the 10-foot channel, and the Town Wharf on the westerly side of the harbor at the head of the 6-foot channel. The first-named wharf is now owned by the Sealshipt Oyster System, and is maintained as a private wharf for use of the owner's vessels, but privilege to moor other craft at this wharf has always been granted without charge as a matter of accommodation. This wharf is a pile wharf with a frontage of about 400 feet on the channel, and is also provided with two small slips. It has no unloading facilities except for oyster vessels. The depth alongside of it is from 6 to 9 feet. It is extensively used in the oyster business, but very little for any other purpose.

The Town Wharf is owned by the town of Milford, and is open to all water carriers on payment of wharfage. It is a solidly filled pier about 300 feet long, the fill being retained in place by piles and planking. The only portion at present available for berthing vessels is at the outer end, which is about 60 feet wide. The depth available in the channel opposite the wharf is 6 feet, but probably not over 3 feet is available close to the wharf itself. There are no unloading facilities except a mast and boom. Statement of terms has been requested but not received. All freight except that handled in the oyster industry is loaded and unloaded at this wharf.

(*b*) None of the wharves in this harbor have railway connections. No prorating agreement exists between rail and water carriers.

(*c*) Access to Merwin's Wharf, named above, is by a good but unpaved highway; access to the Town Wharf is by an unpaved highway in not very good repair.

(*d*) Permit has been obtained by the town of Milford to somewhat extend and widen the outer end of the Town Wharf, and it is proposed to install better unloading facilities and possibly provide slips on the sides as well as the end of the wharf. It is not believed that any additional terminals are needed.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

HOUSATONIC RIVER, CONN.

The project depth of this river is 7 feet at mean low water to the head of navigation at Derby and Shelton. This depth is usually available; but, owing to filling which has taken place during the past season at two of the bars, the available depth at the present time is but about 6 feet.

(*a*) Contiguous to the Housatonic River, wharves are located at Stratford, at a point about 2 miles above Stratford, and at Derby and Shelton. All are privately owned and most are for the exclusive use of their owners, but at Stratford there is one wharf, at Derby two wharves, and at Shelton two wharves, which are open to the public.

The wharf at Stratford is owned by John C. Bond, and is located on the westerly side of the river about 2½ miles above the mouth. It is a pile and timber bulkhead filled with earth. It has an available water frontage of 112 feet and an available depth of from 13 to 16 feet. It is provided with a mast, but has no power or other unloading facilities. It is open to the public, wharfage being charged in some cases for larger vessels. It is used considerably for tying up tugs, barges, etc., bound up and down the river, while awaiting favorable tides, but is little used for freight.

The two wharves at Derby open to the public are owned by the F. Hallock Co. and the Wm. B. Bristol Coal Co., respectively, and are located on the easterly side of the river just below its junction with the Naugatuck River. These wharves have a continuous frontage of about 475 feet, about equally divided between the two companies. They are timber bulkheads filled with earth. The available depth in front of these wharves is from 7 to 8 feet. The Hallock Wharf is provided with a storehouse, four wooden derricks, and a steam hoisting engine. The Bristol Wharf has three masts and a steam hoisting engine, with a trestle and storage sheds for unloading and storing coal. Both of these wharves are reported by their owners as open to all water carriers on equal terms. The charge at the Hallock Wharf is 7 cents per ton for coal or similar freight. The rate at the Bristol Wharf is not named, but is believed to be the same. Practically all water-borne freight consigned to Derby is unloaded at one or the other of these two wharves.

The two wharves at Shelton which are open to the public are both owned by the Ousatonic Water Power Co. They are located on the westerly side of the river. The uppermost, at the extreme head of the dredged channel, affords a water front of about 200 feet, with a depth of from 7 to 8 feet. The other has a frontage of about 170 feet and affords approximately the same depth. The upper wharf is provided with two wooden derricks and steam hoisting engine, a coal hopper, and storage bins. The lower wharf has one derrick operated by horses. Both of these wharves are open to the public on equal terms, the charge being 7 cents per ton.

(*b*) There is no actual physical connection between any railroad and any of the wharves along this river, except at the wharf of the Gulf Refining Co., which is located on the easterly side of the river about six-tenths of a mile above the railroad bridge. The wharf

(a) General location and description.
(b) Physical connection between water terminals and railroads.

was built by the Gulf Refining Co., and is for the exclusive use of that company. The tracks of the Naugatuck branch of the New York, New Haven & Hartford Railroad Co. extend along the rear of this property, and a spur track has been built down to the wharf for use in handling oil. No prorating agreement exists between rail and water carriers.

(*c*) Access to most of the wharves on this waterway is by means of earth highways in fair condition, but in some cases macadamized or otherwise improved roads lead to the wharves.

(*d*) It is believed that the existing terminals are sufficient for the present traffic.

BRIDGEPORT HARBOR, CONN.

The harbor has been improved by the General Government under a detailed project which provides for an entrance channel 22 feet in depth, an upper channel 18 feet in depth, extending beyond the harbor proper up Poquonock River for a distance of somewhat more than a mile, and minor channels ranging in depth from 7 to 12 feet. The most important of these is that in Cedar Creek, opening into the sound by a separate entrance. In addition several anchorage basins have been provided and breakwaters constructed to protect the harbor.

(*a*) While all portions of Bridgeport Harbor have been provided to an extent with wharves, the principal development has taken place on the frontages bordering the upper part of the main harbor, the Poquonock River Channel, and the Cedar Creek Channel. The west side of the main harbor is occupied by the New York, New Haven & Hartford Railroad Co. and the New England Steamship Co.; the east side by numerous private wharves. The Poquonock River is closely lined on both sides with wharves, as are also both branches of Cedar Creek. The general type of wharf in use is a stone or timber bulkhead, filled with earth, flanked by a narrow pile apron. On account of the configuration of the harbor and the limited width of the water areas there are but few piers. The wharves of the large manufacturing concerns are well equipped with modern coal and freight handling appliances, but some of the smaller wharves are deficient in this respect.

There are two publicly owned wharves in the harbor, neither of which can at present be advantageously used for the transfer of freight. The first, located on the upper part of the main harbor, has a frontage of but 47 feet. In extension with it, however, there is a wharf owned by the railroad company which appears to be open to general use. This city wharf is used mainly as a landing place for excursion steamers, tugs, and oyster boats, and for taking on water. The second of the city wharves is on the Poquonock River and has a frontage of 112 feet, with a slip alongside 185 feet in length. It is but recently completed and the adjacent bottom has not been dredged to afford access by vessels. I am informed that the city intends at an early date to dredge vessel berths to 12 feet at low water and to install cargo-handling facilities.

(*a*) General location and description.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

There are a number of private wharves open to all water carriers on equal terms. On the Poquonock River the Poquonock Commercial Corporation has a well-built wharf affording a frontage of 200 feet, which is equipped with a derrick and steam hoisting engine, and is provided with a storage shed. It is much used for unloading freight consigned to parties having no wharves of their own. The terms are not stated. One of the wharves owned by the Crane Valve Co., at the head of Cedar Creek, with an available frontage of 300 feet, is used as a public wharf, and a second in the same locality, owned by the same firm, is reported by them as open to the public on equal terms, although intended primarily for their own business. The former is deficient in cargo-handling facilities, but the latter is well equipped. The charges are stated as dockage 5 cents per gross ton, wharfage $1 per day for boats under 500 gross tons. Fanchers Wharf, on Black Rock Harbor, at the entrance to the Cedar Creek Channel, is used as a public wharf, but is not now in good repair. There are also other wharves which are reported by their owners as open to all water carriers, but are not extensively used except by their owners. A considerable amount of freight consigned to parties other than the owners is handled over the Farist Steel Co.'s wharf, on the east side of the main harbor, although this wharf is not reported by the firm as open to all water carriers on equal terms.

The New York, New Haven & Hartford Railroad Co., with its subsidiary, the New England Steamship Co., owns a water frontage of about 4,400 feet on the west side of the main harbor, of which about one-third is occupied by wharves, and the remainder by tracks and yards. A portion of the latter is, however, provided with a continuous row of mooring piles and is used for tying up and laying up vessels. The wharves are used for the freight and passenger business of the New England Steamship Co., and of two independent lines by which privileges are leased. Conflicting replies have been received from officials of the railroad and steamship companies as to whether any portion of these wharves is open to all water carriers on equal terms, but certain sections are in fact used by vessels other than those of the companies named for unloading freight consigned to private parties.

In addition to the wharves that have been described there are many devoted to the exclusive use of their owners. By far the greater part of the water-borne freight is handled over such wharves.

(*b*) Physical connection exists between the freight wharf of the New England Steamship Co. and the New York, New Haven & Hartford Railroad Co. Several of the wharves of the larger manufacturing concerns, including one open to public use, have spur tracks connected with the railroad. It is understood that the city of Bridgeport intends to have a spur track on its Poquonock River wharf. Prorating agreements for freight exist between the New York, New Haven & Hartford Railroad Co. and the New England Steamship Co. only.

(*c*) The streets leading to some of the wharves are paved and in good condition. Access to others can be had only by earth roads. The city wharf on the main harbor, the railroad company's wharves,

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

and the Crane Co.'s wharves, described above, fall under the former category.

(*d*) It is thought that an additional public terminal at Bridgeport is desirable. While the city's Poquonock River wharf, when put in service, will serve a most useful purpose, it is at some distance from the center of the city, and is so far up the channel that to reach it vessels must pass four drawbridges. While a public wharf adapted to the handling of freight would be most desirable in the main harbor, the cost of securing the necessary land would be high. It is understood, however, that there is an area on the Yellow Mill Channel in municipal ownership. This area is close to the main harbor, is quite centrally located with respect to the manufacturing district, and fronts a channel with a depth of 12 feet at mean low water, excavated by the Federal Government. This location would appear to be most suitable for a public terminal.

NORWALK HARBOR, CONN.

The project for the improvement of this harbor provides for a channel of 10-foot depth to South Norwalk; thence of 8-foot depth to the head of navigation at Norwalk, together with a branch channel of 6-foot depth to East Norwalk.

(*a*) The wharves on this waterway inclose the head of the channel at Norwalk, and line the west bank at South Norwalk for over half a mile. At Norwalk the wharves are formed of timber or stone bulkheads solidly filled with earth, and are in most cases provided with narrow pile aprons. The upper wharves at South Norwalk are of the same character, but the lower wharves, used principally in the oyster industry, are open pile piers extending out to the dredged channel, with slips 100 to 200 feet long between them. Many of the wharves used for handling coal and other heavy freight are equipped with derricks operated by steam power. There are no publicly owned wharves in Norwalk Harbor. One of the wharves at Norwalk is reported by its owner as open to use by all water carriers on equal terms, subject to the owner's convenience, and it appears that at a number of other wharves, not so reported, vessels are allowed to moor and discharge cargo if the privilege does not interfere with the owner's business. It is understood that no charges are made for this accommodation. In this harbor, as in many others of the district, the greater part of the freight is shipped to dealers owning or leasing their own wharves.

(*b*) None of the wharves in use have physical rail connections, and there is no prorating agreement between rail and water carriers. The tracks of the Danbury division of the New York, New Haven & Hartford Railroad Co. follow closely along the westerly side of the waterway between South Norwalk and Norwalk, and spur tracks extend down on some of the older wharves. These structures are not, however, in their present condition available for use.

(*c*) Access to most of the wharves at South Norwalk and East Norwalk may be had by paved streets and macadamized roads which

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

run along the rear of these structures. Most of the streets and roads giving access to the wharves at Norwalk are unpaved.

(*d*) While there appears to be no public demand for public terminals in this harbor, it is thought that the construction of such terminals at Norwalk and at South Norwalk would be of benefit to small shippers and would tend to develop the water-borne commerce of the port. There appears to be ample room for such terminals at both places.

FIVE MILE RIVER, CONN.

Draft of 8 feet can be carried through the channel dredged by the United States to within 2,000 feet of the extreme head of navigation.

(*a*) The principal wharves contiguous to this waterway extend along the easterly side of this harbor for about one-half mile from the head of the channel, as actually dredged, southerly. These wharves consist of solidly filled bulkheads and of open pile structures; in a few cases slips have been constructed, but for the most part the berths are parallel with the channel and at the outer end of the wharves. The commerce in this harbor is confined almost exclusively to the oyster business, and the wharves, with the exception of a few used for small pleasure craft, are used exclusively for this business. Most of the craft engaged in the oyster business from this harbor are comparatively small, and the prevailing depth in the various berths is less than in the dredged channel. Owing to the nature of the business carried on the wharves are for the most part not provided with unloading facilities, but some of them have masts and booms, but no power, with possibly one exception. There are no publicly owned wharves and none built for the exclusive use of the public, but many, probably a majority, of the owners of the private wharves allow vessels other than their own the privilege of docking without charge and as a matter of accommodation.

(*b*) None of the wharves in this harbor have physical railroad connections. No prorating agreement exists between rail and water carriers.

(*c*) A macadamized highway extends along the easterly side of the harbor and within 100 feet or less of the inshore end of most of the wharves, to which access may be readily had from this road.

(*d*) The existing terminals are believed to be sufficient for the present traffic.

STAMFORD HARBOR, CONN.

There are two distinct harbors at Stamford, the east branch with channel depth of 9 feet and the west branch with channel depth of 7 feet. Both channels have been improved by the General Government.

(*a*) In the east branch of Stamford Harbor the principal wharves are located on both sides of the channel within about 3,000

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

feet of its head; in the west branch the wharves inclose the basin at the head of the channel. In general the wharves bordering the channels are formed of stone or timber bulkheads filled with earth. Most are provided with a pile apron. A large proportion of these wharves lie with their faces approximately parallel to and nearly coincident with the established harbor lines. The vessel berths lie along the faces of the longitudinal wharves. While at many wharves the available depths adjacent to the wharves are less than in the dredged channel, in a number of cases the owners have dredged in front of their wharves to secure the same depth as that existing in the channel. The freight-handling facilities on the wharves are generally ordinary mast-and-boom derricks, provided with steam power, but some special devices have been installed for unloading coal. There are no publicly owned wharves in this harbor, and the greater number of the privately owned wharves are held for the exclusive use of their owners. The East Branch Dock Corporation, a company formed to acquire land and build wharves, has constructed on the easterly side of the channel, near the head of the east branch, a well-built wharf having about 700 feet frontage. About half of this frontage has been sold; the remainder is at present exclusively for the use of the public upon the payment of wharfage. At this wharf vessels do their own unloading, as it is not equipped with any plant for the purpose. This wharf is much used for unloading miscellaneous freight, especially lumber and building material, consigned to parties owning no wharves. It is open to all water carriers on equal terms. The charges are as follows: Wharfage, canal boats, loaded, per day, 50 cents; light, 30 cents; other vessels, 2 cents per ton per day for first 200 tons, registered tonnage, and one-half cent per ton per day for each additional ton; for unloading on wharf, lumber, 15 cents per thousand; all other merchandise, 10 cents per net ton; if merchandise is stored on the wharf more than seven days an additional charge is made. In addition to this wharf, at least four privately owned wharves are open to the public. Three of these, owned by Gettman & Judd, David Waterbury & Son, and the Yale & Towne Manufacturing Co., respectively, are located along the westerly side of the east branch near its head. These three wharves form the larger portion of a continuous wharf front of over 1,300 feet, extending from the head of the east branch southerly. Some are provided with derricks and steam engines. All are much used by their owners. It is understood that no wharfage charge is made at any of them, but their use by vessels not consigned to the owners is contingent upon the convenience of the owners. On the west branch the wharf of M. W. Flemming, at the head of the basin, is understood to be open to all water carriers on equal terms, but the terms and conditions of use have not been reported. This wharf is a dry-laid stone bulkhead filled with earth and fronted with a pile apron. The available water frontage is about 200 feet and the available depths along the side at mean low water range from about 2 to 7 feet. It is provided with derricks operated by steam, but these are mainly, if not entirely, for the owner's use. It is used to a considerable extent by the city of Stamford, which leases a portion of it for unloading broken stone and other heavy freight for municipal use, and by other parties owning no wharves.

(*b*) A spur track of the New York, New Haven & Hartford Railroad Co. runs along the westerly side of the east branch for a distance of about 1,800 feet from its head, and forms physical connection between this railroad and a number of the wharves, including those of Getman & Judd, David Waterbury & Son, and the Yale & Towne Manufacturing Co., described above, and the wharf of the North & East River Steamboat Co., which maintains a line of steamers between Stamford and New York. In the case of this latter-named wharf, however, it is not practicable to transfer freight directly from the boat to the railroad without the use of teams. A spur of the same railroad also extends to the factory of Stollwerck & Co., on the west side of the west branch, but does not form actual physical connection with their wharf, which is exclusively a private one. No other physical connection exists between any railroad and the other wharves of this harbor. So far as is known no prorating agreement exists between rail and water carriers at Stamford.

(*c*) There is access to the principal wharves on this harbor by means of ordinary earth roads, for the most part not in very good repair.

(*d*) While there are now sufficient wharfage facilities open to all water carriers on equal and reasonable terms at this harbor, there appears to be no assurance that this condition will be continued. Under the circumstances it would seem desirable that the city of Stamford should own a wharf of its own at which all water carriers might be afforded wharfage facilities on equal terms. There is a stretch of undeveloped water front, 1,000 feet or more in length, immediately south of the wharf of the East Branch Dock Corporation, which affords an excellent situation for such a wharf. It is understood that at least a portion of this water front now belongs to the city. There is not much undeveloped water front available for wharfage purposes on the west branch channel sufficiently near the center of business to be desirable for a public wharf, but as the greater portion of the water-borne traffic is in the east branch, it would appear that the site recommended on this branch is preferable for a publicly owned terminal.

SOUTHPORT HARBOR, CONN.

The existing project for the improvement of Southport Harbor contemplates a channel of 6-foot depth to the upper wharves. Funds have been appropriated for the completion of the project.

(*a*) The commercial wharves contiguous to Southport Harbor are located along the westerly side of the channel, near its head. They are formed of stone bulkheads or retaining walls solidly filled with earth. In a few cases narrow pile aprons have been built outside the bulkheads. The berths available for vessels are at the outer faces of the wharves, approximately parallel to the channel. The available depth of these berths does not appear to be more than 4½ feet at the greatest, and at most of the wharves the available depth is less than

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

this figure. The unloading facilities consist of ordinary masts and booms operated by horsepower. There are no publicly owned wharves and no wharves reported by the owners as open to all water carriers on equal terms, but at several of the privately owned wharves any water carrier is allowed to unload freight on payment of the unloading charges, the unloading being done by the person owning the wharf. The wharves at which these facilities are afforded are located along the upper end of the dredged channel, and form a portion of a continuous wharf front nearly 400 feet long.

(*b*) No physical connections exist between any railroad and any of the wharves in this harbor, and no prorating agreement exists between rail and water carriers.

(*c*) Good earth, gravel, and macadamized roads extend along the rear of the wharves in principal use, giving easy access to them.

(*d*) While the amount of water-borne commerce in this harbor is small, and the present wharfage facilities appear to be accepted as satisfactory, yet it is believed that a good public wharf would tend to develop the commercial use of the waterway.

GREENWICH HARBOR.

The General Government has provided in Greenwich Harbor, Conn., a channel 90 feet wide and 9 feet deep, to the Steamboat Wharf, and thence 6 feet deep to the head of navigation.

(*a*) The commercial wharves in Greenwich Harbor inclose the head of the channel, and extend along its easterly side for a distance of about one-half mile. The wharves are formed of bulkheads of stone or timber, filled with earth, and most of them are provided with a narrow pile apron along their fronts. The vessel berths lie in the dredged channel along the face of the wharves. Several of the wharves in more active use are provided with mast and boom derricks operated by steam, and a few others have derricks without power. None of these wharves are publicly owned and none are reported by the owners as open to all water carriers on equal terms. It appears, however, that wharfage facilities can be obtained by a special agreement when desired. The town claims ownership to two small wharves, but neither of these are accessible to commercial vessels. One is located at the extreme head of the westerly branch of the harbor at a distance of at least 2,000 feet from the dredged channel, and the other abuts on property occupied by a yacht club.

(*b*) None of the wharves have physical rail connections, and no prorating agreement exists between rail and water carriers.

(*c*) An improved highway, macadamized or otherwise paved, extends along the rear of the wharves, giving access to all.

(*d*) While the existing terminals appear to be sufficient for the present traffic, a public terminal available for commercial water-borne traffic would tend to increase the commercial importance of the harbor. It is thought that the precise location of such a terminal should be determined by local authorities.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

WESTPORT HARBOR AND SAUGATUCK RIVER, CONN.

The project for the improvement of Westport Harbor and Saugatuck River provides for a channel 4 feet deep and 60 feet wide up to Westport. The upper portion of the channel has somewhat deteriorated. A draft of about 3½ feet can be carried to the lowest wharves at Westport, but above this point the waterway is commercially navigable only at high tide.

(*a*) The wharves of commercial importance contiguous to Westport Harbor and Saugatuck River are located in the upper part of the river, near the head of navigation. The principal wharves lie along the westerly side of the river, between the railroad bridge at Saugatuck and the highway bridge at Westport, but there are a few small wharves on the easterly side a short distance above the latter bridge. All wharves are in the form of longitudinal bulkheads, generally of dry-laid stone, solidly filled with earth, and the vessel berths are along the face of these bulkheads, approximately parallel to the channel. The available depth at the wharves is small; in some instances the bottom along the side is bare at low tide. The unloading facilities consist of ordinary masts and booms, a few of which are operated by gasoline engines. There are no publicly owned wharves, but several of the privately owned wharves are reported as open to the public on equal terms, the terms and conditions of use not being stated. These are the wharves owned by E. C. Nash, the Atlantic Starch Works, Gault Bros., and Taylor & Richards. The first three of these are located on the westerly side of the river, immediately south of the Westport Highway Bridge, and form a portion of a continuous line of wharves a little over 1,000 feet long, fully half of which is apparently those open to the public. The greater part of the water-borne freight is received and shipped by dealers and manufacturers owning or leasing their own wharves.

(*b*) No physical connections exist between any railroad and any wharves in the harbor, and no prorating agreement exists between rail and water carriers.

(*c*) Good earth, gravel, or macadamized roads extend along the rear of the wharves principally used, affording easy access to them.

(*d*) In view of the small amount of commerce in this harbor and its character, the existing terminals are believed to be sufficient for the present traffic.

COS COB HARBOR AND MIANUS RIVER, CONN.

The project for the improvement of this harbor provided for a channel of 6-foot depth to the town of Mianus, at the head of navigation. Work of improvement was discontinued in 1903.

(*a*) The principal wharf is that of the New York, New Haven & Hartford Railroad Co. at Cos Cob, at which a large amount of coal is received for the near-by power house supplying the motive power for the railroad. This wharf is provided with good unloading facilities and has ample depth of water alongside. The other wharves

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

of commercial importance are located farther up the harbor and are used mainly for receiving coal for local use. There are two wharves, which it is understood are owned by the town of Greenwich, open to all water carriers on equal terms. The terms have not been reported, but it is understood that no charge is made. Both are formed of bulkheads filled with earth and are not provided with unloading facilities. The bottom in front of them is bare at low tide. Except for these wharves, none are reported as open to the public on equal terms, but it is understood that at one or more of the privately owned wharves at Cos Cob and Mianus vessels other than those consigned to the owners are allowed to unload without charge at the convenience of the owner.

(*b*) No physical connection exists between any railroad and any of the wharves on this harbor and no prorating agreement exists between rail and water carriers.

(*c*) The roads giving access to the various wharves described above vary in character from an ordinary earth road to macadam and they are believed to be adequate for the present needs.

(*d*) In view of the small amount of general commerce in this waterway the existing terminals are believed to be sufficient for the present needs.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

[The letters (a), (b), (c), and (d) indicate subheadings as shown by footnotes.]

PORT CHESTER HARBOR, N. Y.

(a) Number of terminals, 20:

No.	General location.	Number of terminals.	Wharf frontage (linear feet).	Condition.	Open to public and terms.					Equipment.
					Number.	Linear feet.	Wharfage per day.	Use of derrick per day.	Use of power per day.	
1	Southeast shore Fox Island	1	75	Good	1	75	(1)	(1)	(1)	None.
2	do	1	110	do						Steam hoist.
3	Located in the upper 3,300 linear feet of river included in project for improvement.	1	260	do						Derrick, no engine.
4	do	1	50	do						Derrick, with engine.
5	do	1	(2)							2 pipe lines.
6	do	1	210	Good						None.
7	do	1	150	do						2 derricks, no engine.
8	do	1	200	do						Do.
9	do	1	200	do	1	200	(3)	(3)	(3)	1 derrick, with engine.
10	do	1	350	do						1 hoist, with motor.
11	do	1	200	do						2 derricks, no engine; 1 derrick, with engine.
12	do	1	150	do						None.
13	do	1	220	do						Steam hoist.
14	do	1	330	do						Derrick, no engine.
15	do	1	180	do						2 derricks, no engine.
16	do	1	220	do						None.
17	do	1	50	do	1	50	(3)	(3)	(3)	Do.
18	do	1	130	do						Derrick, with engine.
19	do	1	100	do						Derrick, no engine.
20	do	1	850	do						Spur connection with railroad.

(a) General location and description. [1] Rarely used; terms unknown. [2] Natural earth slope. [3] Terms unknown.

No.	General location.	Cargoes limited to—[1]	Method of use.	Efficiency.	Owned by.	Kind of structure.
1	Southeast shore Fox Island	400 tons	Transfer from boats to trucks and drays for delivery to merchants and consumers.	Poor; too far from business center, also approach is in poor condition.	Village of Port Chester.	Solid fill behind stone bulkhead.
2	do	(2)	Storage awaiting sale and delivery to merchants.	Excellent, except approach is in poor condition.	Private ownership	Do.
3	Located in the upper 3,300 linear feet of river included in project for improvement.		Not used	None	do	Do.
4	do		Storage awaiting delivery to builders.	Good	do	Do.
5	do		Storage awaiting delivery to consumers.	do	Corporation	Natural earth slope. Pipe lines supported on pile trestle.
6	do		Not used	None	Private ownership	Solid fill behind stone bulkhead.
7	do	500 tons	Storage awaiting delivery to builders and consumers.	Good	do	Do.
8	do	do	do	do	do	Do.
9	do	do	do	do	do	Do.
10	do	do	do	do	do	Do.
11	do	do	do	do	do	120 feet open pile with stone bulkhead in rear; 80 feet solid fill behind stone bulkhead.
12	do		Transfer from boats to trucks and drays for delivery to merchants and consumers.	do	do	Open pile with solid fill behind stone bulkhead in rear.
13	do		Storage awaiting delivery to consumers.	do	do	Do.

14	do	[illegible]	Storage awaiting delivery to builders and consumers.	Fair; insufficient depth of water.	do	130 feet open pile; 200 feet solid fill behind stone bulkhead.
15	do	do	do	do	do	Solid fill behind stone bulkhead.
16	do					Do.
17	do	400 tons	Not used	None	do	Do.
18	do	do	Transfer from boats to trucks and drays for delivery to merchants and consumers.	Fair; insufficient depth of water.	Town of Greenwich	Do.
19	do	do	Storage awaiting delivery to builders and consumers.	do	Private ownership	Do.
20	do	450 tons	do	do	do	Do.
			Storage for consumption on premises.	do	do	Do.

[1] Size of cargoes limited by depth of water in channel.

[2] Cargoes are of size sufficient to meet present requirements of commerce

The method of transferring to and from vessels cargoes of bulk freight, except lumber and bricks, is usually by ordinary steam hoist, and of lumber, bricks, and package freight, by hand or hand truck. The general efficiency is regarded as fair.

(*b*) This territory is served by but one railroad, the New York, New Haven & Hartford. No physical connection exists between it and the water terminals open to the public. A privately owned terminal, not open to the public (serial No. 20) is connected with the railroad by a spur track.

So far as is known no mutual contract exists between any of the water carriers and the railroad for the interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Terminals, serial Nos. 3 to 20, inclusive, are approached by good paved roads. Nos. 1 and 2 are approached by an ordinary earth road in poor condition.

(*d*) The existing terminals appear to be sufficient for present needs.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

MAMARONECK HARBOR.

(a) Number of terminals, 6:

No.	General location.	Number of terminals.	Wharf frontage (linear feet).	Condition.	Open to public and terms.					Equipment.
					Number.	Linear feet.	Wharfage per yard.	Use of derrick per day.	Use of power per day	
1	East side of Harbor Island	1	300	Unserviceable.						None
2	At head of navigation	1	180	Good	1	180	(1)	(1)	(1)	do
3	do	1	150	do						2 derricks, without engines.
4	do	1	70	do	1	70	$0.05			Derrick, without engine.
5	do	1	365	do						Hoist, no engine.
6	do	1	225	do						Derrick, with engine.

No.	General location.	Cargoes limited by—	Method of use.	Efficiency.	Owned by.	Kind of structure.
1	East side of Harbor Island		Closed	None	Town	Open pile.
2	At head of navigation	Depth of water in channel.	Transfer of passengers.	Good	Private ownership	Do.
3	do		Transfer from boats to trucks and drays for delivery to merchants, builders, and consumers.	do	do	Solid fill behind stone bulkhead and open pile.
4	do		do	Fair	Town	Solid fill behind stone bulkhead.
5	do		Storage for delivery to builders and consumers.	Good	Private ownership	225 feet solid fill behind stone bulkhead, 140 feet open pile.
6	do		do	do	do	Solid fill behind crib bulkhead.

(a) General location and description.

[1] Not known.

(*b*) This territory is served by but one railroad, the New York, New Haven & Hartford. No physical connection exists between it and the water terminals.

So far as is known no mutual contract exists between any of the water carriers and the railroad for the interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) All terminals are approached by ordinary earth roads with the exception of wharfs Nos. 5 and 6, which are approached by good macadamized roads.

(*d*) It seems that the present terminal facilities are insufficient for the present needs of commerce. The local authorities are contemplating extensive harbor-front improvements to include the construction of terminals, the number and size of which are to be such as to meet present demands and also the demands of an increase in the commerce of the harbor, which is expected to obtain upon the completion of the improved channel recently provided for by Congress.

LARCHMONT HARBOR, N. Y.

(*a*) None of the wharves or landings in this harbor are used for commercial purposes. The harbor is used mainly as a place of anchorage for yachts and fishing vessels and as a harbor of refuge.

(*b*) All freight receipts and shipments are made by way of the New York, New Haven & Hartford Railroad, the only railroad serving this territory.

(*c*) There are no public highway approaches to the water front.

(*d*) It is understood that the riparian owners whose yachts use the harbor during the summer season object to the construction on the water front of freight terminals for water carriers.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

ECHO BAY HARBOR, N. Y.

(a) Number of terminals, 5:

No.	General location.	Number of terminals.	Wharf frontage (linear feet).	Condition.	Open to public and terms.					Equipment.
					Number.	Linear feet.	Wharfage per day.	Use of derrick per day.	Use of motor per day.	
1	At Beauford Point (Hudson Park)	1	600	Excellent.	1	450	$0.50-$3.00	$3.50	$6.00	2 derricks, 1 motor.
2	do	1	100	do						None.
3	Immediately above Beauford Point	1	1,650	do						Steam hoist.
4	do	1	300	Fair						None.
5	At head of navigation beyond improved channel	1	200	Good						Steam hoist.

No.	General location.	Cargoes limited.[1]	Method of use.	Efficiency.	Owned by.	Kind of structure.
1	At Beauford Point (Hudson Park)	Present needs.	Transfer from boats to trucks and drays for delivery to merchants, builders, and consumers.	Excellent	City	Solid fill behind stone bulkhead.
2	do		Landing passengers	do	Private ownership	Open pile.
3	Immediately above Beauford Point	450 tons	Storage awaiting delivery to builders and consumers.	do	do	250 feet solid fill behind crib bulkhead. 550 feet open pile, stone bulkhead in rear. 850 feet solid fill behind stone bulkhead.
4	do	None	Not used	None	do	Solid fill behind stone bulkhead.
5	At head of navigation beyond improved channel	450 tons	Storage for consumption on premises.	Good	Corporation	75 feet concrete bulkhead. 125 feet crib bulkhead. Solid fill behind.

(a) General location and description.

[1] Above Beauford Point the size of cargo is limited by depth of water in harbor.

(*b*) This territory is served by two railroads, the New York, New Haven & Hartford, and the New York, Westchester, and Boston. No physical connection exists between them and the water terminals.

So far as is known no mutual contract exists between any of the water carriers and the railroads for the interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) All terminals are approached by good macadamized roads.

(*d*) The existing terminals appear to be sufficient for present needs.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

BRONX RIVER, N. Y.

(a) Number of terminals, 18:

No.	General location.	Number of terminals.	Wharf frontage (linear feet).	Condition.	Open to public, and terms.					Equipment.
					Number.	Linear feet.	Wharfage per day.	Use of derrick per day.	Engine and man per day.	
1	Near mouth of river	1	200	Worthless.						None.
2	On west side of river from 3,000 feet below Westchester Avenue Highway Bridge up to head of navigation at Tremont Avenue.	1	150	Good						Derrick with engine.
3	do	1	225	do						Steam hoist and derrick with engine.
4	do	1	75	Excellent.	1	75	(1)	(1)	(1)	None.
5	do	1	200	do						Derrick with motor.
6	do	1	350	do	1	350	$5.00		$10.00	Derrick with engine; spur from New York, New Haven & Hartford R. R.
7	do	1	450	Good						Steam hoist.
8	do	1	125	Excellent.						None.
9	do	1	100	do						Do
10	do	1	225	do						Do.
11	do	1	325	Good	1	325	5.00		10.00	2 derricks with engines.
12	do	1	350	Excellent.						Do.
13	do	1	200	Fair						Derrick with engine.
14	do	1	375	Good						None.
15	do	1	300	do						Do.
16	do	1	290	Fair						Do.
17	do	1	90	do						Do.
18	do	1	1,000	Good						Steam hoist and derrick with engine.

(a) General location and description.

[1] Same as for New York City. See report on East River and Hell Gate.

BRONX RIVER, N. Y.—Continued.

No.	General location.	Cargoes limited to—[1]	Method of use.	Efficiency.	Owned by.	Kind of structure.
1	Near mouth of river		Not used	None	Private ownership	Open pile.
2	On west side of river from 3,000 feet below Westchester Avenue Highway Bridge up to head of navigation at Tremont Avenue.	450 tons	Storage, awaiting delivery to builders.	Good	do	Solid fill behind pile and timber bulkhead.
3	do	do	Storage, awaiting delivery to consumers and builders.	do	do	125 feet solid fill behind pile and timber bulkhead; 100 feet open pile.
4	do	do	For transfer to trucks and drays for delivery.	Fair	City	Open pile.
5	do	400 tons	Storage, awaiting delivery to builders.	Excellent	Private ownership	Solid fill behind pile and timber bulkhead.
6	do	do	do	do	do	Solid fill behind concrete bulkhead.
7	do	300 tons	Storage, awaiting delivery to consumers.	Good	do	Solid fill behind crib bulkhead.
8	do	200 tons	Storage, awaiting delivery to builders.	Fair	do	Solid fill behind concrete bulkhead.
9	do	do	do	do	do	Solid fill behind stone bulkhead.
10	do	do	Storage, awaiting delivery as needed on construction and repairs.	do	Corporation	Do.
11	do	550 tons	Storage, awaiting delivery to builders.	Excellent	Private ownership	Open pile on water front, with solid fill behind stone bulkhead in rear.
12	do	300 tons	Storage, awaiting delivery to consumers.	Good	do	Solid fill behind concrete bulkhead.
13	do	do	Storage, awaiting delivery as needed on construction and repairs.	Fair	Corporation	200 feet solid fill behind crib bulkhead.
14	do	550 tons	Storage, awaiting delivery to builders.	do	Private	Open pile on water front, with solid fill behind stone bulkhead in rear.
15	do	(2)	do	None	do	Solid fill behind stone bulkhead.
16	do	(2)	Now a stable and wagon yard. Formerly used for building material.	do	do	Do.

[redacted]		(2)	Hay and feed storage. All receipts are now by cart from railroad.	do	do	Brick building with stone foundation on water's edge.
18	do	200 tons	Storage for consumption on premises.	Fair	do	Solid fill behind stone bulkhead.

[1] Size of cargoes limited by depth of water in channel.

[2] No longer used on account of insufficient depth of water in channel.

A spur track connects a privately owned wharf situated immediately north of the highway bridge at Westchester Avenue with the New York, New Haven & Hartford Railroad. This and all other wharves are used as a place for transfer to trucks and drays of all receipts by water; also as a place of storage of building material and coal awaiting delivery to builders, merchants, and consumers. No passenger-carrying vessels navigate the river.

The method of transferring from vessels cargoes of bulk freight, except lumber and brick, is usually by ordinary steam hoist, and of lumber and brick by hand or hand truck. The general efficiency is regarded as good, but the transfer of freight is hampered exceedingly by a channel of insufficient depth and width. Because of this it is necessary to navigate the river only at high water, and even then it is impossible at times for tows to pass each other or to pass vessels lying at the wharves discharging cargo. It frequently becomes necessary to stop the work of discharging cargo and shift obstructing vessels to permit the passage of tows.

(*b*) This territory is served by three railroads, the New York Central & Hudson River, the New York, New Haven & Hartford, and the New York, Westchester & Boston, with the exception of a spur track to terminal No. 6. No physical connection exists between them and the water terminals.

So far as is known no mutual contract exists between any of the water carriers and the railroads for the interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) All terminals are approached by paved roads in good condition.

(*d*) The existing terminals are inadequate for the large amount of commerce of the river. This is largely due to insufficient depth and width of channel, which has greatly retarded water-front improvements. A project for enlarging the channel to a width of 100 feet and depth of 10 feet is included as an item in the river and harbor act approved March 4, 1913. There is little doubt but that extensive improvements will be made in terminal facilities upon the opening of this enlarged channel to traffic. The New York State Barge Canal Terminal Commission has under consideration the advisability of locating a terminal on this river. Plans for a terminal consisting of several piers extending into the estuary at the mouth of the creek have been prepared, and it is understood the work of construction is soon to be commenced. This terminal is to provide berths for vessels up to 20,000 tons burden, and will have direct physical connection with the railroad system of Greater New York.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

EAST CHESTER CREEK, N. Y.

(a) Number of terminals, 12:

No.	General location.	Number of terminals.	Wharf frontage (linear feet).	Condition.	Open to public, and terms.					Equipment.
					Number.	Linear feet.	Wharfage per cargo.	Dockage per day.	Engine and man per day.	
1	At mouth of creek	1	40	Worthless.	(1)	(1)	(1)	(1)	(1)	None.
2	Midway between mouth of creek and head of navigation	1	50	Good	1	50	(2)	(2)	(2)	Do.
3	Upper 3,000 feet of section of creek under improvement	1	100	Fair						2 pipe lines.
4	do	1	625	Good						None.
5	do	1	225	do						Derrick, with engine.
6	do	1	600	do	1	1,000	$15.00	$0.50		4 derricks; no engines.
			400	Fair						
7	do	1	100	Poor						Derrick; no engine.
8	do	1	475	Good						Derrick, steam hoist, and 2 pipe lines.
9	do	1	100	do						Steam hoist.
10	do	1	150	do						Derrick, with engine.
11	do	1	150	do						Do.
12	do	1	75	do	1	75	15.00	.50	$8.00	Do.

(a) General location and description.

[1] Closed. Unsafe to use.

[2] Not used. Inconvenient location.

EAST CHESTER CREEK, N. Y.—Continued.

No.	General location.	Cargoes limited to—[1]	Method of use.	Efficiency.	Owned by—	Kind of structure.
1	At mouth of creek				City	Open pile.
2	Midway between mouth of creek and head of navigation			Poor: no facilities for handling cargo; location poor.	do	Solid fill behind rubble-stone, with fender piles.
3	Upper 3,000 feet of section of creek under improvement	60,000 gallons of oil.	Storage, awaiting delivery to merchants and consumers.	Good	Corporation	Solid fill behind pile and timber bulkhead.
4	do	Not known.	Storage awaiting delivery to builders.	Fair	Private ownership	Do.
5	do	do	Storage, awaiting delivery to merchants and consumers.	Good	do	Do.
6	do	400 tons	Mainly for transfer from boats to trucks, drays, etc.; can be used for storage of building material.	Fair to poor.	do	Open pile on water, with pile and timber bulkhead in rear.
7	do		Not used		do	Solid fill behind pile and timber bulkhead.
8	do	400 tons of coal or 60,000 gallons of oil.	Storage, for consumption on premises.	Excellent.	Corporation	Do.
9	do	400 tons	Storage, awaiting delivery to consumers.	Good	Private ownership	Do.
10	do	do	do	do	do	Do.
11	do	do	do	do	do	Do.
12	do	do	Storage, awaiting delivery to builders.	do	do	Do.

[1] Size of cargo limited by depth of water in creek.

The New York State Barge Canal Terminal Commission has under consideration the advisability of locating a terminal on this creek.

The wharves are used as a place for transfer to trucks and drays of all receipts by water, as a place of storage of building materials, coal and oil awaiting delivery to builders, merchants, and consumers, and as a place of storage for coal for the use of the gas company, whose plant is located on the water front.

The method of transferring from vessels cargoes of bulk freight, except lumber and bricks, is usually by hand truck. The transfer of cargoes of coal at three terminals is seriously hampered by a swing bridge at Fulton Avenue, erected without authority of the Secretary of War. With this exception, the efficiency is regarded as fair. Definite steps have been taken recently by the county authorities to remove the present swing bridge and replace it with a lift bridge. No passenger-carrying vessels navigate the creek.

The town wharf is said to be publicly owned, but owing to its inconvenient location with reference to the business center it is little used. A privately owned wharf, of considerable frontage for this locality, situated on the west side of the creek immediately above Boston Post Road, is open to the public, but whether on equal terms to all water carriers or not is not known.

(*b*) This territory is served by three railroads—the New York Central & Hudson River (Harlem division), the New York, New Haven & Hartford, and the New York, Westchester & Boston. No physical connection exists between them and the water terminals.

So far as is known, no mutual contract exists between any of the water carriers and the railroads for the interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) The five upper terminals are approached by a good macadamized road. The other terminals are approached by ordinary dirt roads.

(*d*) Though existing terminals appear to be sufficient for present needs, transfer facilities would be improved by the repair of 400 feet of terminal No. 6.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

WESTCHESTER CREEK, N. Y.

(*a*) Number of terminals, 16:

No.	General location.	Number of wharves.	Wharf frontage (linear feet).	Condition.	Open to public and terms.					Equipment.
					Number	Linear feet.	Wharfage per day.	Use of derrick per day.	Use of power per day.	
1	Between Unionport and mouth of creek	1	75	Unserviceable.						None.
2	do	1	175	Good						Derrick, with engine.
3	do	1	75	do						None.
4	At and near Unionport	1	200	do						Do.
5	do	1	80	do						Do.
6	do	1	125 100	Fair Poor						Derrick, no engine.
7	do	1	250	Excellent.						Steam hoist.
8	do	1	100	do	1	100	(1)	(1)	(1)	None.
9	do	1	240	do						2 steam hoists.
10	Midway between Westchester and Unionport	1	(2)							2 pipe lines.
11	Upper 750-foot section of Creek under improvement	1	225	Good						None.
12	do	1	100	Fair						Steam hoist.
13	do	1	150	Excellent.						Derrick, with engine.
14	do	1	175	Good	1	175	$4.00			Do.
15	do	1	100	Excellent.	1	100	(1)	(1)	(1)	None.
16	do	1	400	Very poor.						Steam hoist and 3 derricks without engines.

No.	General location.	Cargoes limited to—[3]	Method of use.	Efficiency.	Owned by.	Kind of structure.
1	Between Unionport and mouth of creek		Not used	None	Private ownership	Open pile.
2	do	500 tons	Storage for use on public improvements.	Good	do	Do.
3	do	Not known	Transfer to carts for consumption on premises.	Fair	do	Do.
4	At and near Unionport	do	Not used; approach blocked temporarily.		do	Do.
5	do	do	do		do	Do.
6	do	500,000 brick.	Storage awaiting delivery to builders.	Fair	do	Solid fill behind pile and timber bulkhead.
7	do	450 tons	Storage awaiting delivery to consumers.	Excellent	do	Solid fill behind stone bulkhead.
8	do	do	For transfer from boats to trucks, drays, etc.	Fair	City	Open pile.
9	do	450 tons, or 100,000 gallons of oil.	Storage for consumption on premises.	Excellent	Corporation	Solid fill behind timber bulkhead.
10	Midway between Westchester and Unionport	250,000 gallons of oil.	Storage awaiting delivery to consumers.	Fair	do	Natural earth slope, pipe line supported on rubblestone foundation about 6 feet wide.
11	Upper 750-foot section of creek under improvement	200,000 feet of lumber or 200,000 brick.	Storage awaiting delivery to builders.	do	Private ownership	Pile.
12	do	500 tons	Storage awaiting delivery to consumers.	Good	do	Pile with fill behind stone bulkhead in rear.
13	do	450 tons	Storage awaiting delivery to builders.	do	do	Open pile with solid fill behind bulkhead in rear.
14	do	do	do	do	do	Open pile.
15	do		For transfer from boats to trucks, drays, etc.	Fair	City	Do.
16	do	450 tons	Storage awaiting delivery to consumers.	Poor	Private	200 feet pile, 200 feet pile and timber bulkhead.

(a) General location and description.
[1] Same as New York City. See report on East River and Hell Gate.
[2] Natural earth slope.
[3] Size of cargo limited by depth of water in creek.

(*b*) This territory is served by but one railroad, the New York, New Haven & Hartford. No physical connection exists between it and the water terminals.

So far as is known no mutual contract exists between any of the water carriers and the railroad for the interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) All terminals are approached by good macadamized roads, with the exception of Nos. 1 to 5, inclusive, which are approached by ordinary dirt roads, in poor condition.

(*d*) The existing terminals are sufficient for present needs.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(a) [illegible] RIVER AND HELL GATE, N. Y.

No.	General location.	Number of terminals.	River frontage (linear feet).[1]	Condition.	Open to public and terms.					Equipment.[3]
					Number.	Linear feet.	Wharfage per day.	Use of derrick per day.	Use of power per day.	
1	East River, west shore, between the Battery and Barretto Point.	39	7,325	Generally good.	39	7,325	(3)	.....	.....	
2	.....do.....	10	1,325	...do.....	10	650±	(3)	.....	.....	
3	.....do.....	17	1,775	...do.....	17	1,775	(4)	(4)	(4)	
4	.....do.....	5	600	...do.....	5	600	(3)	.....	.....	
5	.....do.....	7	575	...do.....	.....	.....	.....	.....	.....	
6	.....do.....	1	200	...do.....	.....	.....	.....	.....	.....	
7	.....do.....	15	2,825	...do.....	.....	.....	.....	.....	.....	
8	.....do.....	22	3,600	...do.....	.....	.....	.....	.....	.....	
9	.....do.....	34	6,000	...do.....	.....	.....	.....	.....	.....	
10	.....do.....	2	250	...do.....	.....	.....	.....	.....	.....	
11	.....do.....	5	1,000	...do.....	.....	.....	.....	.....	.....	
12	.....do.....	17	3,500	...do.....	.....	.....	.....	.....	.....	
13	.....do.....	3	525	...do.....	.....	.....	.....	.....	.....	
14	.....do.....	14	2,450	...do.....	.....	.....	.....	.....	.....	
15	.....do.....	4	400	...do.....	4	400	(4)	(4)	(4)	
16	.....do.....	12	2,225	...do.....	.....	.....	.....	.....	.....	
17	.....do.....	14	3,350	...do.....	.....	.....	.....	.....	.....	
18	.....do.....	1	100	...do.....	.....	.....	.....	.....	.....	
19	.....do.....	2	300	...do.....	.....	.....	.....	.....	.....	
	Total East River, west shore.....	224	38,325							
1	East River, east shore, between Wall Street Ferry and Lawrence Point.	11	1,500	...do.....	11	1,500	(3)	.....	.....	
2	.....do.....	8	2,175	...do.....	6 2	1,425 750	$75.00 (4)	.....	.....	
3	.....do.....	11	1,250	...do.....	11	1,250	.....	(4)	(4)	
4	.....do.....	9	850	...do.....	.....	.....	.....	.....	.....	
5	.....do.....	1	275	...do.....	.....	.....	.....	.....	.....	
6	.....do.....	22	5,775	...do.....	.....	.....	.....	.....	.....	
7	.....do.....	2	550	...do.....	.....	.....	.....	.....	.....	
8	.....do.....	22	7,100	...do.....	.....	.....	.....	.....	.....	
9	.....do.....	38	11,325	...do.....	.....	.....	.....	.....	.....	
10	.....do.....	12	2,450	...do.....	.....	.....	.....	.....	.....	
11	.....do.....	5	500	...do.....	5	500	(4)	(4)	(4)	

(a) General location and description. [1] Linear feet of wharf frontage not ascertained. [2] See Note A. [3] Tabulated statement of rates. (See next sheet.) Rates not ascertained.

EAST RIVER AND HELL GATE, N. Y.—Continued.

No.	General location.	Number of terminals.	River frontage (linear feet).	Condition.	Open to public and terms.					Equipment.
					Number.	Linear feet.	Wharfage per day.	Use of derrick per day.	Use of power per day.	
12	East River, east shore, between Wall Street Ferry and Lawrence Point.	20	4,200	Generally good.						
13	....do	1	50	...do						
14	....do		4,500	...do						
	On Blackwells Island	11	2,825	...do						
	On North Brother Island	3	350	...do						
	On Rikers Island	1	100	...do						
	Total East River, east shore	177	45,775							
	Grand total	401	84,100							

No.	General location.	Cargoes limited.[1]	Method of use.	Efficiency.[2]	Owned by.	Kind of structure.
1	East River, west shore, between the Battery and Barretto Point		General wharfage		City	Solid bulkhead to the bulkhead line and open pile wharves outside.
2	....do		General wharfage and part leased to transportation interests other than railroads.		....do	Do.
3	....do		Public ferries		Private ownership	Do.
4	....do		....do		City	Do.
5	....do		Public ferries not in use		Not ascertained	Do.
6	....do		Trans-Atlantic commerce.		City, leased to steamship line.	Do.
7	....do		Coastwise commerce		....do	Do.
8	....do		Local transportation interests other than railroads.		Private ownership	Do.
9	....do		Transportation interests other than railroads.		City, leased to transportation interests.	Do.
10	....do		City departments and part leased.		City	Do.
11	....do		Coastwise commerce		Private ownership	Do.
12	....do		Manufacturing plants		....do	Do.

13	do		Miscellaneous and unimportant.		do	Do.
14	do		Railroad water terminals.		City, leased to railroads.	Do.
15	do		Public ferries		Railroads	Do.
16	do		Railroad water terminals.		do	Do.
17	do		City departments		City	Do.
18	do		Quartermaster's Department, U. S. Army.		City, leased to United States Government.	Do.
19	do		United States Government.		United States Government.	Do.
1	East River, east shore, between Wall Street Ferry and Lawrence Point		General wharfage		City	Do.
2	do		do		Private ownership	Do.
3	do		Public ferries		do	Do.
4	do		Public ferries not in use.		Not ascertained	Do.
5	do		Trans-Atlantic com-		Private ownership	Do.
6	do		Coastwise commerce		do	Do.
7	do		Commerce between ports in United States and all foreign countries.		do	Do.
8	do		Local transportation interests other than railroads.		do	Do.
9	do		Manufacturing plants		do	Do.
10	do		Not used or purpose unknown.		do	Do.
11	do		Public ferries		Railroads	Do.
12	do		Railroad water terminals.		do	Do.
13	do		City departments		City	Do.
14	do		Navy yard		United States Government.	Do.
	On Blackwells Island		City departments		City	Do.
	On North Brother Island		do		do	Do.
	On Rikers Island		do		do	Do.

[1] See Note B.

[2] See paragraph (*d*).

It is proposed by the Barge Canal Terminal Commission to construct 5 terminals on the East River water front. The proposed locations are as follows: Near the Battery; in the vicinity of Corlears Hook; at the mouth of Newtown Creek; water front between East Sixty-fourth and East Ninetieth Streets, Manhattan; and at Port Morris.

NOTE A.—Though a number of terminals appear to be fairly equipped for the character of the freight handled, the large majority depend upon freight-handling appliances on vessels. A great improvement might be made in this respect, and it is understood the local authorities have under consideration an extensive scheme of improvement whereby such appliances will be provided where it appears that economy in the handling of freight will result, and also whereby the transfer of part cargoes between terminals will be facilitated and the cost of handling reduced.

NOTE B.—The size of cargoes is limited by the depth of water available in the approaches to the terminals. In some localities only part cargoes are received at the terminals and the loading finished by lighters in deep water. In other localities covering a considerable stretch of water front the commercial interests are placed at a disadvantage because of the comparatively slight depth of water available for navigation, which forces these interests to utilize the services of light-draft vessels, at a unit cost for freightage somewhat higher than would be obtained if larger vessels could reach their terminals.

TABULATED STATEMENT OF RATES, LEGAL WHARFAGE RATES, NEW YORK CITY.

Regular wharfage, 2 cents per ton up to 200 tons, and ½ cent per ton for any excess over 200 tons. If vessel occupies an outside berth, and is not working cargo or ballast, one-half of this rate.

Floating grain elevators, half rates.

Floating structures not otherwise provided for, double rates.

State traffic.

North River barges, market boats and barges, sloops employed upon the rivers and waters of the State, and schooners employed exclusively upon the rivers and waters of the State, as follows:

Under 50 tons	$0.50
50 tons, and under 100	.62½
100 tons, and under 150	.75
150 tons, and under 200	.87½
200 tons, and under 250	1.00
250 tons, and under 300	1.12½
300 tons, and under 350	1.25
350 tons, and under 400	1.37½
400 tons, and under 450	1.50
450 tons, and under 500	1.62½
500 tons, and under 550	1.75
550 tons, and under 600	1.87½

For 600 tons and upward, 12½ cents per 50 tons in excess of last rate.

Canal boats, per diem, 50 cents loaded, 30 cents unloaded. (It is understood that a "canal boat" is a vessel built for navigating the canals of the State, measuring not more than 98 feet in length nor more than 18 feet in width, and whose registered net tonnage does not exceed 150 tons.)

Vessels freighting brick upon the Hudson River, same rate. Scows or barges freighting gravel, broken stone, cement, or sand upon the rivers and waters of the State, 50 cents per day.

Clam and oyster vessels, under 200 tons, 1½ cents per ton for an inside berth and 1 cent per ton for an outside berth, but no vessel to pay less than 25 cents per day, nor for less than one day.

Lighters and barges engaged in lightering freight in harbor of New York, 1 cent per running foot.

Coal hoists on scows or floats, with coal hopper, etc., $1 per day.

Canal boats (as described above) engaged in transporting coal in the harbor, 50 cents per diem, loaded; 30 cents unloaded; all other boats transporting coal, 1 cent per running foot, loaded or unloaded.

Twenty-four hours from the time of day or night when a boat reaches a pier or slip constitute a day for all vessels. A fraction of a day counts as one day, and vessels remaining any fraction over 24 hours pay for another day.

Top wharfage on merchandise, 5 cents per ton. (Accrues after the expiration of 24 hours from time of landing.)

Payment of wharfage: Dock masters must collect in cash any and all wharfage daily, except in cases where a credit account has been opened by consent of the commissioner. Payment for wharfage by those having credit accounts must be made direct to the cashier of the department within 10 days after receipt of bill.

Municipal ferry, Staten Island division, between Manhattan and St. George or between Manhattan and Stapleton.

Passengers:	
Adults	$0.05
Children under 5 years of age	Free.
Vehicles (including driver):	
All vehicles, light or loaded, drawn by four horses	.95
All vehicles, light or loaded, drawn by three horses	.85
All vehicles, light or loaded, drawn by two-horses, except pleasure vehicles	.70
All vehicles, light or loaded, drawn by one horse, except pleasure vehicles	.30
All coaches or pleasure vehicles, drawn by two horses	.50
All coaches or pleasure vehicles, drawn by one horse	.30
Automobiles (including operator):	
Motor cycles (2 wheel, 3 wheel)	.15
All business autos or motor trucks, light or loaded, under 25 feet over all	.70
All pleasure automobiles, light or loaded, under 25 feet over all	.60
Miscellaneous:	
Hand cart, with attendant	.20
Led horses, cattle, or other animals, each	.20
Machinery trucks, with heavy loads, special arrangement.	
Bicycles, including passenger	.10
For each additional passenger on any of the above vehicles, other than the driver or operator	.05
Any vehicle too wide or too high to pass through the team gangway may be taken on one end of the boat, and the boat turned around at the other terminal to discharge the vehicle from the boat, when the traffic will permit. The tariff for such vehicles will be	10.00
All horse-drawn vehicles 30 feet or over in length, over all, including the horses and one driver, per linear foot	.03
All automobiles, 25 feet or more in length, over all, including the operator or driver, per linear foot	.03
Any object 30 feet in length, or over, per linear foot	.03

Municipal Ferry, Thirty-ninth Street, Brooklyn Division.

Passengers:	
Adults	$0.05
Children between 4 and 12 years	.03
Vehicles (including driver):	
All vehicles, light or loaded, drawn by four horses	.55
All vehicles, light or loaded, drawn by three horses	.45
All vehicles, light or loaded, drawn by two horses, except pleasure vehicles	.35
All vehicles, light or loaded, drawn by one horse, except pleasure vehicles	.20
All coaches or pleasure vehicles, drawn by two horses	.30
All coaches or pleasure vehicles, drawn by one horse	.20
Automobiles (including operator):	
Motor cycles (2 wheel, 3 wheel)	.10
All business autos or motor trucks, light or loaded, under 25 feet over all	.40
All pleasure automobiles, light or loaded, under 25 feet over all	.20
Miscellaneous:	
Hand cart, with attendant	.10
Led horses, cattle, or other animals, each	.10
Machinery trucks, with heavy loads, special arrangement.	
Bicycles, including passenger	.10
For each additional passenger on any of the above vehicles, other than the driver or operator	.05
Any vehicle too wide or too high to pass through the team gangway may be taken on one end of the boat and the boat turned around at the other terminal to discharge the vehicle from the boat, when the traffic will permit. The tariff for such vehicles will be	10.00
All horse-drawn vehicles 30 feet or over in length over all, including the horses and one driver, per linear foot	.03
All automobiles 25 feet or more in length over all, including the operator or driver, per linear foot	.03
Any object 30 feet in length or over, per linear foot	.03

(*b*) Twelve railroads, all of them connected with water terminals, serve this territory. They are the New York Central & Hudson River; New York, New Haven & Hartford; New York, Westchester & Boston; Long Island; West Shore; Central Railroad of New Jersey; Lehigh Valley; Pennsylvania; Erie; Delaware, Lackawanna & Western; New York, Ontario & Western; and New York, Susquehanna & Western.

No mutual contract exists between these railroads and the water carriers for the interchange and prorating of traffic in or out of the port of New York. Through-rate agreements are entered into, however, between the railroads and water-transportation lines not owned or controlled by the railroads, except as to inland points and foreign ports. Freight consigned to foreign ports is delivered at the port of New York for transfer by local arrangement to other carriers for shipment to its destination.

(*c*) The highway approaches are paved streets in good condition, generally. Though apparently inadequate in the business sections for the economical handling and transfer of the exceedingly large amount of freight received at and shipped from the various warehouses, this is largely if not wholly due to the absence, as a rule, of modern methods and appliances in the transfer of cargoes to and from piers and vessels.

(*d*) Insufficient depth of water in stretches of considerable extent along the water front, which has made these stretches unavailable for terminals suitable for the accommodation of deep-draft vessels, combined with a very large increase in the commerce of the river within recent years, has caused a congestion of traffic which it is very difficult to relieve. The city authorities have been for some time past considering an extensive scheme of improvement which provides for the construction of terminals adapted to the necessities of the port and fitted with modern appliances, whereby the handling and transshipping of freight will be facilitated and the cost thereof reduced, the congestion of traffic both on land and water along the water front lessened to a very appreciable extent, and the transfer of part cargoes for transshipment and local delivery can be accomplished rapidly and at a lessened cost. It now seems probable that active steps will soon be taken toward directing the construction of a number of terminals of modern design.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

HARLEM RIVER, N. Y.

(a) Number of terminals, 145:

No.	General location.	Number of terminals.	River frontage (linear feet).[1]	Condition.	Open to public and terms.					Equipment.[2]
					Number.	Linear feet.	Wharfage per day.	Use of derrick per day.	Use of power per day.	
1	Harlem River, Manhattan side	22	3,530	Generally good.	22	3,530	(3)			
2	do	1	750	do	1	750	(4)	(4)	(4)	
3	do	4	275	do	4	137±				
4	do	24	3,565	do						
5	do	7	1,150	do						
6	do	1	300	do	1	150±	(4)	(4)	(4)	
7	do	2	350	do						
8	do	10	2,495	do						
9	do	3	425	do						
10	do	1	75	do						
11	do	6	1,670	do						
12	do	1	100	do						
13	do	7	810	do						
	Total, Manhattan side	89	15,495							
1	Harlem River, Bronx side	6	1,045	do	6	1,045	(3)			
2	do	16	3,690	do						
3	do	1	75	do						
4	do	4	980	do						
5	do	10	2,355	do						
6	do	10	3,575	do						
7	do	8	2,635	do						
8	do	1	110	do						
	Total, Bronx side	56	14,465							
	Grand total	145	29,960							

(a) General location and description.

[1] Linear feet of wharf frontage not ascertained.

[2] Though a number of terminals appear to be fairly equipped for the character of the freight handled, the large majority depend upon freight-handling appliances on vessels. A great improvement might be made in this respect, and it is understood the local authorities have under consideration an extensive scheme of improvement whereby such appliances will be provided where it appears that economy in the handling of freight will result, and also where by the transfer of part cargoes between terminals will be facilitated, and the cost of handling reduced.

[3] See tabulated statement of rates given in report upon East River and Hell Gate, N. Y.

[4] Rates not ascertained. See rate card.

HARLEM RIVER, N. Y.—Continued.

No.	General location.	Cargoes limited.[1]	Method of use.	Efficiency.[2]	Owned by.	Kind of structure.
1	Harlem River, Manhattan side		General wharfage		City	Solid bulkhead to bulkhead line, and open pile wharfs outside.
2	do		do		Private ownership	Do.
3	do		General wharfage, and part leased to transportation interests other than railroads.		City	Do.
4	do		Local transportation interests other than railroads.		Private ownership	Do.
5	do		Transportation interests other than railroads.		City, leased to transportation interests.	Do. Do.
6	do		General wharfage and city departments.		City	Do.
7	do		Coastwise commerce		Private ownership	Do.
8	do		Manufacturing plants		do	Do.
9	do		Not in use or purpose unknown.		do	Do.
10	do		Railroad water terminal.		City, leased to railroad.	Do.
11	do		Railroad water terminals.		Railroads	Do.
12	do		Manhattan State Hospital.		City, leased to New York State.	Do.
13	do		City departments		City	Do.
1	Harlem River, Bronx side		General wharfage		do	Do.
2	do		Local transportation interests other than railroads.		Private ownership	Do.
3	do		Transportation interests other than railroads.		City, leased to transportation interests.	Do.
4	do		Coastwise commerce		Private ownership	Do.
5	do		Manufacturing plants		do	Do.
6	do		Railroad water terminals.		Railroads	Do.
7	do		Not in use or purpose unknown.		Private ownership	Do.
8	do		City departments		City	Do.

[1] As a rule, vessels arrive at and depart from terminals fully loaded. However, a number of terminals exist in localities where the depth of water in the approaches is insufficient for navigation. As money becomes available under the project for improving the river, the area of deep water is being extended, and this work will eventually result in removal of the shoals existing at these terminals.

[2] See paragraph (*d*).

It is proposed by the Barge Canal Terminal Commission to construct two terminals on the Harlem River, one to be located at Sherman Creek and the other at the Mott Haven Canal.

(*b*) See report on East River and Hell Gate, N. Y.

(*c*) See report on East River and Hell Gate, N. Y.

(*d*) The existing terminals appear to be sufficient in number for present purposes. The city authorities are providing additional terminals as needed. It is understood that new piers are to be constructed by the city during this season in the vicinity of West Two hundred and eighth and West Two hundred and ninth Streets.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

HARBOR OF ST. ALBANS, VT.

(*a*) Number of terminals, 1:

No.	General location.	Number of terminals.	Wharf frontage (linear feet).	Condition.	Open to public, and terms.					Equipment.
					Number.	Linear feet.	Wharfage per day.	Use of derrick per day.	Use of power per day.	
1	St. Albans Bay, about 1½ miles from the town of St. Albans....	1	250	Fair....	.....	.....	.....	.....	.....	Connection with city of St. Albans by electric railway.

No.	General location.	Cargoes limited—	Method of use.	Efficiency.	Owned by—	Kind of structure.
1	St. Albans Bay, about 1½ miles from the town of St Albans.....	By depth of water in approach channel.	Transfer of passengers and package freight.	Low.....	Corporation.....	Open pile.

(*a*) General location and description.

(*b*) This territory is served by but one railroad, the Central Vermont. No physical connection exists between it and the water terminal.

So far as is known, no mutual contract exists between any of the water carriers and the railroad for the interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) The terminal is approached by an ordinary earth road in poor condition.

(*d*) The existing terminal facilities appear to be sufficient for present needs.

The water-borne traffic is now carried by the steamers of the Champlain Transportation Co., and is very limited in quantity, amounting in 1911 to approximately 250 tons of general merchandise.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

PLATTSBURG HARBOR, N. Y.

(*a*) Number of terminals, 4:

No.	General location.	Number of terminals.	Wharf frontage (linear feet).	Condition.	Open to public and terms.					Equipment.
					Number.	Linear feet.	Wharfage per hundredweight.	Use of derrick per day.	Use of power per day.	
1	At United States Government breakwater	1	580		1	580	(1)	(1)	(1)	None.
2	do	1	650		1	650	(1)	(1)	(1)	Railroad spur.
3	do	1	400		1	400	$0.04			Do.
4	do	1	150							Do.

No.	General location.	Cargoes limited.	Method of use.	Efficiency.	Owned by—	Kind of structure.
1	At United States Government breakwater	(2)	Transfer of lumber to and from vessels.	Poor	Private ownership	Timber bulkhead with solid fill in rear.
2	do	(2)	do	do	do	Do.
3	do	(2)	Passenger traffic and package freight.	do	do	Do.
4	do	(2)	Not used	do	do	Do.

(*a*) General location and description. [1] Not ascertained. [2] By depth of water in the water front.

The New York State Barge Canal Terminal Commission has provided for the construction of a terminal in this harbor.

(*b*) This territory is served by one railroad, the Delaware & Hudson. There is physical connection between it and terminals 2, 3, and 4.

So far as is known no mutual contract exists between any of the water carriers and the railroad for the interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) The roads in the immediate vicinity of the terminals are ordinary earth roads in fair condition.

(*d*) The existing terminals appear to be sufficient for present needs.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

BURLINGTON HARBOR, VT.

(*a*) Number of terminals, 20:

No.	General location.	Number of terminals.	Wharf frontage (linear feet).	Condition.	Open to public and terms.					Equipment.
					Number.	Linear feet.	Wharfage per ton.	Use of derrick per day.	Use of power per day.	
1-9	In basin	9	4,200							Derricks; no engine.
10, 11	Opposite breakwater	2	1,500							Railroad spurs.
12	do	1	1,200		1	1,200	$0.25			None.
13	do	1	1,000							Derrick; no engine.
14	do	1	600		1	Part.	(1)	(1)	(1)	Do.
15	do	1	90		1	90	(1)	(1)	(1)	None.
16-20	do	5	7,200							Do.

No.	General location.	Cargoes limited.	Method of use.	Efficiency.	Owned by.	Kind of structure.
1-9	In basin		Railroad water terminals and storage of lumber and grain awaiting shipment.	Good	Railroad and private ownership.	Crib.
10, 11	Opposite breakwater		Railroad water terminals.	do	Railroad	Do.
12	do		Passenger traffic and package freight.	do	Private ownership	Open pile.
13	do		Railroad water terminal.	do	Railroad	Do.
14	do		do	do	do	Do.
15	do		General wharfage	do	City	Crib.
16-20	do		Railroad water terminal.	do	Railroad	Do.

(*a*) General location and description.

[1] No charge.

The privately owned wharves are reserved for the use of the owners in the conduct of their business, but it is believed that equitable and satisfactory arrangements can be made by anyone desiring to use them for a limited time. Common impression prevails that the use of all docks is controlled by the Rutland Railroad and Vermont Central Railway.

(*b*) This territory is served by two railroads, the Central Vermont and the Rutland Railroad. There is physical connection between the railroads and terminals 11, 16, and 17.

So far as is known no mutual contract exists between any of the water carriers and the railroads for the interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) The roads in the immediate vicinity of the terminals are ordinary earth roads in from fair to poor condition.

(*d*) The existing terminals appear to be sufficient for present needs.

NARROWS OF LAKE CHAMPLAIN, N. Y. AND VT.

(*a*) The water terminals in the section of the narrows of Lake Champlain undergoing improvement consist of docks at Whitehall, Snody, Chubb, and Benson Landing. Of these, only the docks at Whitehall are in actual and continuous use during the navigation season. The docks at Whitehall are all owned privately or by corporations. Except for the docks of the railroad company, they are mainly used for the purpose of tying up boats pending the making up of tows or lockage into the canal. The railroad company's docks are used for the transfer of pulp wood from water to rail and of coal from rail to water. One dock is used for the transfer of undressed lumber from barges to the sawmill for dressing and return to the barges. It is not believed that these docks are open to all carriers on equal terms.

(*b*) Physical connection with railroad exists only at the railroad company's docks used for the transfer of pulp wood and coal. It is believed that there is a mutual contract for the interchange of traffic between the railroad company and the Lake Champlain Transportation Co., prorating as to long-distance traffic carried partly by rail and partly by water.

(*c*) The highways to the terminals are ordinary dirt roads, in fair condition.

(*d*) The New York State barge-terminal act provides for a public terminal owned and operated by the State at Whitehall. This terminal is located on the west bank of the Champlain Canal, south of the lock connecting the canal with Whitehall Harbor. It is expected to complete this terminal in 1913.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

WHITEHALL HARBOR, N. Y.

(*a*) Number of terminals, 3:

No.	General location.	Number of terminals.	Wharf frontage (linear feet).	Condition.	Open to public and terms.				
					Number.	Linear feet.	Wharfage per day.	Use of derrick per day.	Use of power per day.
1	At village north of dam.	1	1,800	Poor..	1	2,640	No charge.	No charge.	No charge.
2	.....do.....	1	1,000	...do..	.....	.....	...do.....	...do.....	Do.
3	Above village.....	1	1,400	Good .	.....	.....	...do.....	...do.....	Do.

No.	General location.	Equipment.	Cargoes limited.	Method of use.
1	At village north of dam.....	None.....	By canal depth....	General wharfage.
2	.....do.....	Slip with railroad spur.	.....do.....	Transfer of lumber to and from vessels.
3	Above village.....	Chain conveyor...	.....	Railroad water terminal.

No.	General location.	Efficiency.	Owned by.	Kind of structure.
1	At village north of dam.....	Poor.....	Private ownership.	Timber bulkhead with solid fill in rear.
2	.....do.....	Fair.....	.....do.....	Do.
3	Above village.....	Good.....	Railroad Co.....	Do.

The New York State Barge Canal Terminal Commission has under consideration the construction of a barge-canal terminal in the canal near the entrance lock.

(*b*) This territory is served by but one railroad, (?) the Delaware & Hudson.

Physical connection between the railroad and water terminals exists only at the slip and the railroad wharf.

So far as is known no mutual contract exists between any of the water carriers and the railroad for the interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) The terminals are approached by ordinary earth roads in fair condition.

(*d*) The existing terminal facilities appear to be sufficient for present needs.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

HUDSON RIVER (BETWEEN WATERFORD AND HUDSON), N. Y.

(a) Number of terminals, 172:

No.	General location.	Number of terminals.	Wharf frontage (linear feet).	Open to public and terms.[1]					Equipment.
				Number.	Linear feet.	Wharfage per day.	Use of derrick per day.	Use of power per day.	
1-9	Between Union Bridge, Waterford, and Cohoes and Lansingburg Bridge	9	3,495						2 derricks, no engine.
10-14	Between Cohoes and Lansingburg Bridge and State Dam	5	1,655						Do.
15	Below Delaware & Hudson Railroad bridge	1	1,900						None.
16	do	1	100						Derrick, no engine.
17	Below highway bridge, Troy	1	400						None.
18	do	1	150						Derrick, no engine.
19-20	do	2	900						None.
21	do	1	500						Derrick, no engine.
22	do	1	800						2 derricks, no engine.
23-24	Between Seventh and Ninth Streets, Port Schuyler	2	700						None.
25	Opposite Port Schuyler	1	1,700						Derrick, no engine.
26	Opposite Wynant Kill	1	500						None.
27	On Patroons Island	1	125						Do.
28	Opposite lumber district, Albany	1	1,150						Do.
29	East of lumber district	1	800						Derricks with engines.
30	On Erie Canal (lumber district)	1	4,000	1	4,000	$1.50			None.
31	At railroad freight bridge	1	2,250	1	2,250	[2] .01½			Derrick, no engine.
32	Manhattan Navigation Co	1	400						None.
33-36	On Van Rensselaer Island	4	900						Do.
37	do	1	1,450						Do.
38-41	Below State Street Pier	4	1,500						Do.
42	At highway bridge, west side	1	3,100						2 derricks, no engine.
43-44	North of highway, east side	2	1,800						None.
45	Below highway bridge, east side	1	550						Coal hoist.
46	do	1	750						None.
47	Below mouth of Island Creek	1	1,500	1	1,500	Free to railroad shippers			Derrick and railroad spur.
48	do	1	500						None.
49-50	do	2	400						Pipe lines.
51	Northeast of Van Wies Point	1	1,200						None.
52	On Van Wies Point	1	125						Do.
53-54	do	2	300						Do.
55	On Staats Point	1	300						Do.
56	On Bear Island	1	500						Do.
57-58	At Cedar Hill Landing	2	150						Do.

(a) General location and description.

[1] Where information is not given in these columns, see note A.

[2] Per ton.

HUDSON RIVER (BETWEEN WATERFORD AND HUDSON), N. Y.—Continued.

No.	General location.	Number of terminals.	Wharf frontage (linear feet).	Open to public and terms.					Equipment.
				Number.	Linear feet.	Wharfage per day.	Use of derrick per day.	Use of power per day.	
59	At Cedar Hill Landing	1	225						None.
60	On Campbell Island	1	250						Do.
61	Below Cedar Hill Landing	1	140						Do.
62	On Cow Island	1	300						Do.
63–64	At Castleton	2	250						Do.
65	do	1	530						Do.
66–67	On Schermerhorn Island	2	950						Do.
68–69	On Shad Island	2	350						Do.
70–71	At Mulls	2	600						Do.
72	On Upper Schodack Island	1	150						Do.
73	At North Coeymans	1	300						Do.
74–75	do	2	750						Do.
76	do	1	200						Do.
77	On Mulls Plaat	1	200						Do.
78	North of Roah Hook	1	700						Do.
79–80	At Roah Hook	2	450						Do.
81	At Coeymans	1	550						Do.
82–83	do	2	850						Do.
84	At Schodack Landing	1	150						Do.
85	On Lower Schodack Island, east side	1	400						Do.
86	On Mulls Island	1	400						Do.
87	do	1	400						Do.
88	On Barren Island	1	600						Do.
89	Below Barren Island	1	200						Do.
90–93	On Houghtailing Island	4	900						Do.
94	do	1	150						Do.
95	North of New Baltimore	1	350						Do.
96	At New Baltimore	1	80						Derrick, no engine.
97	do	1	350						Do.
98	do	1	400						Do.
99	do	1	650						None.
100–104	do	4	1,380						Do.
105	Below New Baltimore	1	175						Do.
106	At Poelsburg	1	250						Do.
107–109	At Mathews Point	3	950						Do.
110	Below Poelsburg	1	250						Do.
111	Above Stuyvesant	1	750						Do.
112	On Bronks Island	1	175						Do.
113	Above Coxsackie Creek	1	150						Do.
114	At Stuyvesant	1	900						Do.
115	Opposite Stuyvesant	1	125						Do.

116	Below Stuyvesant	1	350					Do.
117-121	Opposite Lighthouse and Coxsackie Islands	5	950					Do.
122	On Lighthouse Island	1	900					Do.
123-126	On Coxsackie Island	4	1,000					Do.
127	Above Coxsackie	1	250					Do.
128	On Nutten Hook	1	450					Do.
129	.....do	1	50					Do.
130	At Coxsackie	1	300					Do.
131	.....do	1	50					Do.
132	.....do	1	800					Do.
133	.....do	1	300					Do.
134	.....do	1	600					Do.
135	.....do	1	500					Do.
136	Below Nutten Hook	1	800					Do.
137	Below Fordham Point	1	2,700					Do.
138	Below Coxsackie	1	250					Do.
139	.....do	1	500					Do.
140	.....do	1	400					Do.
141	.....do	1	350					Do.
142	.....do	1	250					Do.
143	Above Stockport Landing	1	270					Do.
144	At Stockport Landing	1	400					Do.
145	On Four Mile Point	1	175					Do.
146	.....do	1	450					Do.
147	North of Murderers Creek	1	600					Do.
148	.....do	1	1,750					Do.
149	Above Hudson	1	350					Do.
150	.....do	1	100					Do.
151	Below Murderers Creek	1	450					Do.
152	At Athens	1	400					Do.
153	.....do	1	900					Do.
154	.....do	1	600					Do.
155	.....do	1	600					Do.
156	.....do	1	200					Do.
157	.....do	1	50					Do.
158	.....do	1	250					Do.
159	.....do	1	50					Do.
160	.....do	1	900					Do.
161	At Hudson	1	500					Do.
162	.....do	1	400					Do.
163	.....do	1	50					Do.
164	.....do	1	75					Do.
165	.....do	1	225					Do.
166-169	.....do	4	2,600					Do.
170	.....do	1	800					Do.
171	.....do	1	300					Do.
172	.....do	1	100					Pipe line.

HUDSON RIVER (BETWEEN WATERFORD AND HUDSON), N. Y.—Continued.

No.	General location.	Cargoes limited.[1]	Method of use.	Efficiency.[2]	Owned by.	Kind of structure.
1-9	Between Union Bridge, Waterford, and Cohoes and Lansingburg Bridge.		Mainly for the storage of coal and lumber, awaiting delivery to consumers and builders.		Private ownership	Timber bulkhead with solid fill in rear.
10-14	Between Cohoes and Lansingburg Bridge and State Dam		do		do	Do.
15	Below Delaware & Hudson Railroad bridge		Railroad water terminal.		Railroad	Do.
16	do		Hudson River transportation interests other than railroads.		Steamboat line	Do.
17	Below highway bridge, Troy		do		do	Do.
18	do		Storage of coal for consumption on premises.		Corporation	Do.
19-20	do		Not used		do	Do.
21	do		Receipt of material for for use on premises.		do	Do.
22	do		United States Arsenal		United States Government.	Stone bulkhead with solid fill in rear.
23-24	Between Seventh and Ninth Streets, Port Schuyler		Not used		Private ownership	Timber bulkhead with solid fill in rear.
25	Opposite Port Schuyler		Storage of coal and receipt of material, for consumption and use on premises.		do	Do.
26	Opposite Wynant Kill		Not used		Corporation	Do.
27	On Patroons Island		Transfer of passengers.		do	Do.
28	Opposite lumber district, Albany		Not used		Private ownership	Do.
29	East of lumber district		Storage of lumber and building material awaiting delivery.		do	Do.
30	On Erie Canal (lumber district)		Storage of lumber awaiting delivery.		do	Do.
31	At railroad freight bridge		Railroad water terminal.		Railroad	Do.
32	Manhattan Navigation Co.		Hudson River transportation interests other than railroads.		Leased to steamboat line.	Do.
33-36	On Van Rensselaer Island		Not used		Railroad	Do.
37	do		do		Private ownership	Do.

			Hudson River transportation interests other than railroads.		Steamboat line, 275 feet leased from city.	Do.
42	At highway bridge, west side		Miscellaneous and unimportant.		Private ownership	Do.
43–44	North of highway, east side		do		do	Do.
45	Below highway bridge, east side		Dockage for towboats		Corporation	Do.
46	do		Making up tows and coaling.		Private ownership	Do.
47	Below mouth of Island Creek		Railroad water terminal.		Railroad	Do.
48	do		Not used		Not ascertained	Do.
49–50	do		Transfer of oil for storage, awaiting delivery to consumers.		Corporations	Do.
51	Northeast of Van Wies Point		Storage of ice		Corporation	Do.
52	On Van Wies Point		Transportation interests other than railroad.		Private ownership	Do.
53–54	do		Storage of ice		Corporation	Do.
55	On Staats Point		do		Private ownership	Do.
56	On Bear Island		do		Corporation	Do.
57–58	At Cedar Hill Landing		Transportation interests other than railroads.		Private ownership	Do.
59	do		Storage of ice		do	Do.
60	On Campbell Island		do		do	Do.
61	Below Cedar Hill Landing		Storage of sand awaiting shipment.		do	Do.
62	On Cow Island		Storage of ice		do	Do.
63–64	At Castleton		Transportation interests other than railroads.		do	Do.
65	do		do		do	Do.
66–67	On Schermerhorn Island		Storage of ice		Corporation	Do.
68–69	On Shad Island		do		Private ownership	Do.
70–71	At Mulls		do		do	Do.
72	On Upper Schodack Island		do		do	Do.
73	At North Coeymans		do		Corporation	Do.
74–75	do		Storage of brick awaiting shipment.		Private ownership	Do.
76	do		Storage of ice		do	Do.
77	On Mulls Plaat		do		do	Do.
78	North of Roah Hook		Storage of brick awaiting shipment.		do	Do.
79–80	At Roah Hook		do		do	Do.
81	At Coeymans		Storage of ice		do	Do.
82–83	do		Transportation interests and storage of ice.		do	Do.

[1] For information as to limit of cargoes, see note B.

[2] For information as o efficiency, see note C.

HUDSON RIVER (BETWEEN WATERFORD AND HUDSON), N. Y.—Continued.

No.	General location.	Cargoes limited.	Method of use.	Efficiency.	Owned by.	Kind of structure.
84	At Schodack Landing		Storage of ice		Private ownership	Timber bulkhead with solid fill in rear.
85	On Lower Schodack Island, east side		do		Corporation	Do.
86	On Mulls Island		do		Private ownership	Do.
87	do		do		do	Do.
88	On Barren Island		do		Corporation	Do.
89	Below Barren Island		do		Private ownership	Do.
90–93	On Houghtailing Island		do		do	Do.
94	do		do		do	Do.
95	North of New Baltimore		Not used		do	Do.
96	At New Baltimore		Transportation interests other than railroads.		do	Do.
97	do		(?)		do	Do.
98	do		Shipyard		do	Do.
99	do		Not used (?)		do	Do.
100–104	do		Storage of ice		Corporation	Do.
105	Below New Baltimore		do		Private ownership	Do.
106	At Poelsburg		do		do	Do.
107–109	At Mathews Point		do		do	Do.
110	Below Poelsburg		do		do	Do.
111	Above Stuyvesant		do		do	Do.
112	On Bronks Island		do		do	Do.
113	Above Coxsackie Creek		do		do	Do.
114	At Stuyvesant		Transportation interests and storage of ice.		do	Do.
115	Opposite Stuyvesant		Storage of ice		do	Do.
116	Below Stuyvesant		Storage of brick awaiting shipment.		do	Do.
117–121	Opposite Lighthouse and Coxsackie Islands		Storage of ice		do	Do.
122	On Lighthouse Island		do		Corporation	Do.
123–126	On Coxsackie Island		do		do	Do.
127	Above Coxsackie		Storage of brick awaiting shipment.		Private ownership	Do.
128	On Nutten Hook		Storage of ice		Corporation	Do.
129	do		Public ferry		Private ownership	Do.
130	At Coxsackie		Transportation interests other than railroads.		do	Do.

133	do		Public ferry		do	Do.
			Transportation interests other than railroads.		do	Do.
133	do		Storage of coal awaiting delivery to consumers.		do	Do.
134	do		Storage of ice		Corporation	Do.
135	do		do		do	Do.
136	Below Nutten Hook		Storage of brick awaiting shipment.		Private ownership	Do.
137	Below Fordham Point		do		do	Do.
138	Below Coxsackie		Storage of ice		do	Do.
139	do		do		do	Do.
140	do		do		do	Do.
141	do		do		Corporation	Do.
142	do		do		do	Do.
143	Above Stockport Landing		Not used		Private ownership	Do.
144	At Stockport Landing		Transportation interests other than railroads.		do	Do.
145	On Four Mile Point		Storage of ice		do	Do.
146	do		Not used		Corporation	Do.
147	North of Murderers Creek		Storage of ice		do	Do.
148	do		do		Private ownership	Do.
149	Above Hudson		Storage of brick awaiting shipment.		do	Do.
150	do		Not used		do	Do.
151	Below Murderers Creek		Storage of brick awaiting shipment.		do	Do.
152	At Athens		Storage of ice		Corporation	Do.
153	do		do		do	Do.
154	do		do		do	Do.
155	do		do		do	Do.
156	do		Hotel wharf		Private ownership	Do.
157	do		Public ferry		do	Do.
158	do		Transfer of material for use on premises.		do	Do.
159	do		Storage of ice		do	Do.
160	do		Shipyard		do	Do.
161	At Hudson		Not used		Railroad	Do.
162	do		do		do	Do.
163	do		Transportation interests other than railroads.		Private ownership	Do.
164	do		Public ferry		do	Do.
165	do		Transportation interests other than railroads.		do	Do.

HUDSON RIVER (BETWEEN WATERFORD AND HUDSON), N. Y.—Continued.

No.	General location.	Cargoes limited.	Method of use.	Efficiency.	Owned by.	Kind of structure.
166-169	At Hudson		Not used		Railroad	Timber bulkhead with solid fill in rear.
170	do		Storage of cement awaiting shipment.		Corporation	Do.
171	do		Not used		Private ownership	Do.
172	do		Transfer of oil from vessels for storage.		Corporation	Do.

New York State Barge Canal Terminal Commission has now under construction in this district 3 barge canal terminals—2 at Troy with frontages of 410 and 950 feet and 1 at Albany with a frontage of 1,800 feet.

NOTE A.—The greater part of improved wharfage is owned or controlled by regular transportation companies or by railroads. The wharves of the former are in practically continuous use by the owners, and the wharves of the latter are open to shippers only on terms prescribed by the railroads. The use of the remainder of the wharfage can probably be obtained by shippers for a nominal sum subject to the convenience of the owners. Wharfage rates are in general a matter of special agreement.

NOTE B.—Practically all the wharfage contiguous to this improvement has less depth alongside than the present channel depth, and the draft and cargoes of carriers are correspondingly limited; the Hudson River night lines and the oil companies' wharves being the exceptions.

NOTE C.—The oil docks, ice houses, and the Delaware & Hudson Co.'s slip are efficiently equipped with freight-handling devices. The other wharves are not. The present Hudson River type of steamboat is not adapted for the handling of freight except by means of hand trucks.

(*b*) This territory is served by six railroads, the New York Central, West Shore, Delaware & Hudson, Boston & Albany, Boston & Maine, and the Rutland Railroad. The principal wharves at Albany, Castleton, and Hudson have physical connections with one or more railroads.

The Delaware & Hudson is the only road in this district having prorating agreements with the steamship companies.

(*c*) The terminals adjacent to cities are, as a rule, approached by paved roads in poor condition. The remainder are approached by ordinary earth roads.

(*d*) Although the existing terminals at Albany and Troy appear to be insufficient to accommodate the amount of commercial traffic at these places, the completion of the three barge-canal terminals will improve the conditions materially. The completion of the barge-canal system will, however, necessitate extensive additions to the present water-terminal facilities.

SAUGERTIES HARBOR N. Y.

(*a*) Number of terminals, 5:

No	General location.	Number of terminals.	Wharf frontage, linear feet.	Condition.	Open to public and terms.					Equipment.
					Number.	Linear feet.	Wharfage per day.	Use of derrick per day.	Use of power per day.	
1	Near mouth of Esopus Creek.	1	300	Good	1	300	Usually no charge			Derrick, no engine.
2	do	1	300	do	1	300	do			Do.
3	do	1	200	do	1	200	do			Do.
4	do	1	800	do	1	800	do			Do.
5	do	1	800	do			do			Do.

No	General location.	Method of use.	Efficiency.	Owned by.	Kind of structure.
1	Near mouth of Esopus Creek.	Storage of stone awaiting shipment.	Fair	Private ownership.	Timber bulkhead, with solid fill in rear.
2	do	do	do	do	Do.
3	do	Passenger traffic and package freight.	do	do	Do.
4	do	Storage of stone awaiting shipment.	do	do	Do.
5	do	Receipt of material for use on premises and shipment of manufactures.	do	do	Do.

(*b*) This territory is served by but one railroad, the West Shore. No physical connection exists between it and the water terminals.

So far as it is known, no mutual contract exists between any of the water carriers and the railroad for the interchange of traffic by prorating as to such long distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) The terminals are approached by ordinary unpaved village roads and are not in good repair.

(*d*) The existing terminals appear to be sufficient for present needs.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

HARBOR OF RONDOUT, N. Y.

(*a*) Number of terminals, 9:

No.	General location.	Number of terminals.	Wharf frontage.	Equipment.
			Lin. ft.	
1-4	On north side of harbor	4	1,800	Derricks, with engine.
5	.....do	1	300	Do.
6	.....do	1	900	Do.
7	.....do	1	150	Railroad spur.
8	.....do	1	1,200	Derrick, with engine.
9	.....do	1	2,700	Coal hoist.

No.	General location.	Method of use.[1]	Efficiency.	Owned by.	Kind of structure.
1-4	On north side of harbor.	Storage of coal, lime, cement, and stone awaiting shipment.	Fair	Private ownership.	Timber bulkhead, with solid fill in rear.
5	.....do	Storage of coal awaiting shipment.	...do	.....do	Do.
6	.....do	Repair shops	...do	Corporation	Do.
7	.....do	Passenger traffic and package freight.	...do	Private ownership.	Do.
8	.....do	Towboat repair shops	...do	.....do	Do.
9	.....do	Transfer of coal to vessels for shipment.	Good	Railroad.	Do.

[1] All are reserved for the use of the owners.

(*b*) This territory is served by two railroads, the West Shore and the Ulster & Delaware. Physical connection exists between the Ulster & Delaware and terminals Nos. 7 and 9.

It is understood that a prorating agreement exists between the Ulster & Delaware and the Central Hudson Steamboat Co. (terminal No. 7) for the interchange of such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Paved streets give access to the water front at intervals.

(*d*) The existing terminal facilities appear to be sufficient for present needs.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(a) Number of terminals, 7: PEEKSKILL HARBOR, N. Y

No.	General location.	Number of terminals.	Wharf frontage (linear feet.)	Condition.	Open to public and terms.					Equipment.
					Number.	Linear feet.	Wharfage per day.	Use of derrick per day.	Use of power per day.	
1	At mouth of Peekskill Creek, a tributary to Annsville Creek	1	100	Excellent.						Belt conveyors, electric power.
2	Along water front of town of Peekskill	1	20	Good						Steam hoist.
3	do	1	770	do						None.
4	do	1	650	do	1	650	(1)	$0.50		6 derricks, with engines.
5	do	1	200	Fair						3 derricks, with engines.
6	do	1	600	Good						None.
7	About 1,400 feet below Travis Point	1	500	Excellent.						Electric hoist, 3 derricks, with engines. Spur connection with railroad.

No.	General location.	Cargoes limited.	Method of use.	Efficiency.	Owned by.	Kind of structure.
1	At mouth of Peekskill Creek, a tributary to Annsville Creek	By depth of water and horizontal clearance of bridge draw span.	Transfer of sand and gravel to boats for shipments mainly to New York City.	Excellent.	Private ownership	Concrete.
2	Along water front of town of Peekskill	By depth of water in channel.	Transfer from boats for consumption on premises.	do	Corporation	Iron trestle extending out from natural bank.
3	do	To 900 tons	Storage awaiting delivery to builders.	Good	Private ownership	Solid fill behind crib bulkhead.
4	do	To 700 tons	General wharfage	do	do	Do.
5	do	To 500 tons	Storage awaiting delivery to consumers.	do	New York Central & Hudson River R. R. Co.	Do.
6	do		Not used	None	do	Do.
7	About 1,400 feet below Travis Point	To 500 tons	Transfer from boats for consumption on premises.	Excellent.	Corporation	Open pile.

(a) General location and description.

[1] Brick, $0.15 per M.; cement, $0.01 per barrel; iron, $0.05 per ton.

(*b*) This territory is served by but one railroad, the New York Central & Hudson River. The only physical connection between it and the water terminals consists of a spur track to terminal No. 7.

So far as is known no mutual contract exists between any of the water carriers and the railroad for the interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) All terminals excepting No. 7 are approached by paved roads crossing the railroad tracks at grade. No. 7 is approached by an earth road, and is connected by spur track with the main line of the New York Central & Hudson River Railroad.

(*d*) The terminals available for public use are deemed insufficient for present needs. It is possible that this will be remedied in the near future by the carrying out of an extensive scheme of waterfront improvement by the railroad company in conjunction with the local authorities. It appears, however, that the terminals which are to form part of the proposed improvement are to be under the control of the railroad company. It can not be stated at this time to what extent, if any, these terminals will be open to the public.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

WAPPINGER CREEK, N. Y.

(a) Number of terminals, 6:

No.	General location.	Number of terminals.	Wharf frontage (linear feet).	Condition.	Open to public, at 1 terms.					Equipment.
					Number.	Linear feet.	Wharfage per day.	Use of derrick per day.	Use of power per day.	
1	North side of railroad trestle bridge	1	75	Good						None.
2	Immediately above highway bridge	1	350	Fair						2 derricks, with engines.
3	About 1 mile below head of navigation	1	300	do	Part.	(?)	No charge			None.
4	do	1	550	do	1	550	do			2 derricks, without engines.
5	At and close to head of navigation	1	40	do	1	40	do			Derrick, no engine.
6	do	1	2,700	Good	Part.	(?)	do			3 steam hoists, 4 derricks with engines.

No.	General location.	Size of cargoes limited by—	Method of use.	Efficiency.	Owned by—	Kind of structure.
1	North side of railroad trestle bridge	Depth of water in channel.	Direct connection with New York Central & Hudson River R. R. for transfer to and from boats.	Good	Corporation	Open pile.
2	Immediately above highway bridge	do	Storage for consumption on premises.	do	Private ownership	Solid fill behind pile and timber bulkhead.
3	About 1 mile below head of navigation	do	Not used	None	do	Solid fill behind crib bulkhead.
4	do	do	Storage awaiting delivery to consumers.	Fair	Corporation	Do.
5	At and close to head of navigation	do	Transfer from boats to trucks and drays for delivery to merchants and consumers.	do	do	Do.
6	do	do	Storage for consumption on premises.	Good	do	Solid fill behind stone bulkhead.

(a) General location and description.

(*b*) This territory is served by but one railroad, the New York Central & Hudson River. Railroad connection exists with terminal No. 1, which terminal is used as a place for the receipt and shipment of freight consigned to or shipped from terminals 5 and 6, the owners of which latter employ their own boats for the transfer of freight by water.

It is not known whether mutual contract exists between the owners of these boats or any of the other water carriers and the railroad for the interchange of traffic by prorating as to such long distance traffic, as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) All terminals are approached by ordinary earth roads.

(*d*) The existing terminal facilities appear to be sufficient for present needs.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

TARRYTOWN HARBOR, N. Y.

(a) Number of terminals, 7:

No.	General location.	Number of terminals.	Wharf frontage (linear feet).[1]	Condition.	Open to public and terms.					Equipment.
					Number.	Linear feet.	Wharfage per day.	Use of derrick per day.	Use of power per day.	
1	Along water front of village of Tarrytown	1	1,300	Good	1	1,300	$5.00			Steam hoist.
2	do	1	1,200	do						2 derricks with engines.
3	do	1	550	do						Do.
4,5	do	2	100	Fair						
6	do	1	350	Good						None.
7	do	1	650	Poor						2 derricks, no engines.

No.	General location.	Cargoes limited.	Method of use.	Efficiency.	Owned by.	Kind of structure.
1	Along water front of village of Tarrytown	(1)	Storage awaiting delivery to builders and consumers.	Good	Private ownership	1,100 feet crib bulkhead; 100 feet pile and timber bulkhead; 100 feet stone bulkhead.
2	do	700 tons	do	do	do	Solid fill behind crib bulkhead.
3	do		One-half not used, one-half transfer from boats for consumption on premises.	Fair	One-half by corporation, one-half by private ownership.	Do.
4,5	do		Ferry slips	do	Private ownership	Pile slips and solid fill behind crib bulkhead.
6	do	(1)	Transfer from vessel to trucks and drays for delivery to merchants and consumers.	do	do	Solid fill behind crib bulkhead.
7	do	200 tons	Storage awaiting delivery to consumers.	Poor	do	Do.

(a) General location and description.

[1] Size of cargo limited by depth of water in channel.

(*b*) This territory is served by but one railroad, the New York Central and Hudson River. No physical connection exists between it and the water terminals.

So far as is known no mutual contract exists between any of the water carriers and the railroad for the interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) All terminals are approached by paved roads crossing over the railroad at grade.

(*d*) The existing terminals appear to be sufficient. The town authorities are contemplating the construction of a public wharf along about 500 to 600 feet of the water front immediately south of the existing terminals.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(a) HUDSON RIVER CHANNEL OF NEW YORK HARBOR, N. Y.

No.	General location.	Number of terminals.	River frontage (linear feet).[1]	Condition.	Open to public and terms.					Equipment.[2]
					Number.	Linear feet.	Wharfage per day.	Use of derrick per day.	Use of power per day.	
1	Hudson River, New York shore, between the Battery and Spuyten Duyvil.	20	6,100	Generally good.	20	6,100	(3)	.....	.....	
2	.....do.....	88	1,500	...do.....	8	750	(3)	.....	.....	
3	.....do.....	1	200	...do.....	1	200	(4)	(4)	(4)	
4	.....do.....	12	3,650	...do.....	.....	.....	.....	.....	.....	
5	.....do.....	20	4,850	...do.....	.....	.....	.....	.....	.....	
6	.....do.....	11	2,200	...do.....	.....	.....	.....	.....	.....	
7	.....do.....	4	800	...do.....	.....	.....	.....	.....	.....	
8	.....do.....	1	150	...do.....	.....	.....	.....	.....	.....	
9	.....do.....	44	10,600	...do.....	.....	.....	.....	.....	.....	
10	.....do.....	22	2,025	...do.....	22	2,025	(4)	(4)	(4)	
11	.....do.....	7	1,240	...do.....	.....	.....	.....	.....	.....	
12	.....do.....	4	1,750	...do.....	.....	.....	.....	.....	.....	
	Total, New York shore[5].....	154	35,065							
1	Hudson River, New Jersey shore, between lower end of Jersey City and opposite Spuyten Duyvil.	2	275	Generally good.	2	275	(4)	(4)	(4)	
2	.....do.....	2	500	...do.....	2	500	(4)	(4)	(4)	
3	.....do.....	10	3,100	...do.....	.....	.....	.....	.....	.....	
4	.....do.....	2	1,000	...do.....	.....	.....	.....	.....	.....	
5	.....do.....	13	3,200	...do.....	.....	.....	.....	.....	.....	
6	.....do.....	21	6,500	...do.....	.....	.....	.....	.....	.....	
7	.....do.....	85	22,230	...do.....	.....	.....	.....	.....	.....	
8	.....do.....	28	2,850	...do.....	8	2,850	(4)	(4)	(4)	
9	.....do.....	8	1,350	...do.....	.....	.....	.....	.....	.....	
10	.....do.....	6	1,650	...do.....	.....	.....	.....	.....	.....	
	Total, New Jersey shore.....	176	42,655							
	Grand total.....	330	77,720							

(a) General location and description.
[1] Linear feet of wharf frontage not ascertained.
[2] See note A.
[3] See tabulated statement of rates given in report upon East River and Hell Gate, N. Y.
[4] Rates not ascertained.
[5] It is proposed by the Barge Canal Terminal Commission to construct six terminals in the water front on the New York side between the Battery and the mouth of Spuyten Duyvil Creek in locations as follows: At Vestry Street; at Gansevoort Street; at West Fifty-first Street to West Fifty-fourth Street; at West Seventy-seventh Street; at West One hundred and thirty-fifth Street; and just below the mouth of Spuyten Duyvil Creek. The latter is to be a port of call.

HUDSON RIVER CHANNEL OF NEW YORK HARBOR, N. Y.—Continued.

No.	General location.	Cargoes limited.[1]	Method of use.	Efficiency.[2]	Owned by.	Kind of structure.
1	Hudson River, New York shore, between the Battery and Spuyten Duyvil.		General wharfage		City	Solid bulkhead to bulkhead line, and open pile wharfs outside.
2	do		General wharfage and part leased to transportation interests other than railroads.		do	Do.
3	do		Public ferries		Private ownership	Do.
4	do		Trans-Atlantic commerce.		City, leased to steamship lines.	Do.
5	do		Coastwise commerce		do	Do.
6	do		Transportation interests other than railroads.		City, leased to transportation interests.	Do.
7	do		City departments and part leased.		City	Do.
8	do		Manufacturing plants		Private ownership	Do.
9	do		Railroad water terminals.		City, leased to railroads.	Do.
10	do		Public ferries		Railroads	Do.
11	do		Railroad water terminals.		do	Do.
12	do		City departments		City	Do.
1	Hudson River, New Jersey shore, between lower end of Jersey City and opposite Spuyten Duyvil.		General wharfage		do	Do.
2	do		Public ferries		Private ownership	Do.
3	do		Trans-Atlantic commerce.		do	Do.
4	do		Coastwise commerce		do	Do.
5	do		Local transportation interests other than railroads.		do	Do.
6	do		Manufacturing plants		do	Do.
7	do		Railroad water terminals.		Railroads	Do.
8	do		Public ferries		do	Do.
9	do		Dry docks		Private ownership	Do.
10	do		Miscellaneous and unimportant.		do	Do.

[1] See note B.

[2] See paragraph (*d*).

NOTE A.—Though a number of terminals appear to be fairly equipped for the character of the freight handled, a large majority depend upon freight-handling appliances on vessels. A great improvement might be made in this respect, and it is understood the local authorities have under consideration an extensive scheme of improvement whereby such appliances will be provided, where it appears that economy in the handling of freight will result, and also whereby the transfer of part cargoes between terminals will be facilitated, and the cost of handling reduced.

NOTE B. Complaint has been made that a number of deep-draft vessels are forced to arrive at and leave their berths not fully loaded. This condition will be relieved in part by the expenditure of funds recently appropriated.

(*b*) See report upon East River and Hell Gate, N. Y.

(*c*) See report upon East River and Hell Gate, N. Y.

(*d*) The large increase in the commerce of the river within recent years has caused a congestion of traffic which it is very difficult to relieve. The city authorities have been for some time past considering an extensive scheme of improvement, which provides for the construction of terminals adapted to the necessities of the port and fitted with modern appliances, whereby the handling and transshipping of freight will be facilitated and the cost thereof reduced; the congestion of traffic both on land and water along the water front lessened to a very appreciable extent, and the transfer of part cargoes for transshipment and local delivery can be accomplished rapidly and at a lessened cost. It now seems probable that active steps will soon be taken toward directing the construction of a number of terminals of modern design.

REPORT OF THE MECHANICAL EQUIPMENT OF NEW YORK HARBOR.

JANUARY 24, 1913.

Hon. WILLIAM J. GAYNOR,
Mayor of the City of New York.

SIR: The increasing size of ships and the desirability of maintaining prompt sailings for liner service, which is supplanting tramp service at the important ports, has resulted in increasing necessity for prompt dispatch for terminals. Quick and cheap terminal service in loading and unloading vessels is essential to the prosperity of a port. The recognition for this need has suggested the submission of the accompanying report, prepared by First Deputy Commissioner B. F. Cresson, jr., and the chief engineer of the department, Charles W. Staniford.

The dock department, in addition to controlling the municipal docks, also exercises a large degree of control and supervision over private water-front improvements, which can only be undertaken with the approval of this department. The rapid development of public terminals more fully equipped than those which have hitherto been constructed, and the rapid development of privately owned water front makes discussion of port administration methods opportune.

The interdependence of port facilities makes it desirable that terminals shall be standardized as far as practicable, to promote the coastwise trade of the country and to secure uniformity of terminal service at all our ports for the accommodation of ships engaged in over-sea trade.

Respectfully submitted.

CALVIN TOMKINS, *Commissioner of Docks.*

CITY OF NEW YORK,
DEPARTMENT OF DOCKS AND FERRIES,
New York, December 19, 1912.

CALVIN TOMKINS, Esq., *Commissioner of Docks.*

SIR: Many reports have been published by the different seaports, principally abroad, which have been profusely illustrated to show not only the characteristics of the harbors but also to bring into prominence the variety of mechanical equipment employed in the handling of freight. Very little has been written concerning the freight-handling facilities in New York Harbor, and it is the general impression among foreign engineers and others visiting this harbor that New York is deficient both as to mechanical equipment as compared with foreign harbors and also as to the efficiency of the methods employed in handling cargo. There is probably no subject at the present time of greater importance in the

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

science of harbor development than a consideration of freight-handling equipment, and it is the purpose of this report to describe the general equipment to be found about New York Harbor and to discuss the methods of freight handling, in order that it may form a basis for future consideration in the design of up-to-date terminals. Many photographs have been taken and certain drawings have been prepared for this report by the staff of the department to indicate the fact that in New York Harbor there is a great variety of freight-handling devices, but it should also be borne in mind that in the handling of package freight on piers there has not been placed on any pier anywhere a mechanical equipment capable of taking the place of the cumbersome and expensive hand, horse, or motor truck, and we believe that the consideration and development of some sufficiently elastic form of overhead carriage will be devised which will greatly decrease the cost of freight handling. One of the most important features to be considered in the design of modern dockage facilities is the rapid economical loading and discharging of cargoes carried by vessels entering the harbor. It is a question whether this important subject has been given the consideration it warrants in the many cases where terminal layouts have been planned and dock structures designed for the development of water-front accommodations. Too often the pier or wharf under design has been considered mainly as a "structure along the water front to which vessels may be safely moored," and its cargo-handling facilities have been considered of secondary importance, if considered at all. Vessels are brought to port to first embark or disembark passengers and second to discharge and load merchandise, either in bulk or packages, and all possible economy should be observed. The method of effecting these economies should be kept constantly in mind by the designer of modern pier or steamship terminals.

The cost to the shipper or manufacturer of handling merchandise by slow, cumbersome, and expensive methods is borne, in fact, by the consumer. Rapid mechanical handling will enable the manufacturer to sell cheaper, and competition will quickly give to the consumer the benefit of lower cost to the manufacturer. If a truck, with team and driver, stands for half a day or more waiting for a chance to deposit its truck load on a pier or on a railroad platform, the consumer pays for it in the higher price of the commodity. Delays to tugs, barges, lighters, derricks, etc., are all paid for by the consumer.

MECHANICAL EQUIPMENT IN USE IN NEW YORK HARBOR.

The criticism has been made that New York Harbor lacks modern methods of loading and discharging vessels. European engineers have pointed with pride to their great traveling cranes and derricks, rolling towers, etc., installed along the quays and pier sides at European ports, a notable case being the Kuhwaerder Dock, at Hamburg, where 134 great traveling cranes frown upon the harbor's shipping like the great guns of a fortress. European engineers have also criticized American methods of handling freight. To what extent this criticism is justified by the facts is a question upon which shipping men differ, and many authorities lean to the opinion that the American methods are no more expensive than those in vogue in Europe when consideration is given to the cost, maintenance, and depreciation of plant, difference in the rate of pay of labor, the number of working hours of the dock laborer, and the difference in railroad rolling stock. Many authorities state that cargo is handled as rapidly in America, if not more so, than in Europe, particularly when sorting is required, which is nearly always the case with American freight, be it trans-Atlantic, coastwise, railroad, or general.

For the handling of commodities in bulk New York Harbor is probably better equipped than European ports. Great installations of the most modern and effective types of machinery for handling coal, grain, etc., in bulk will be found in the various railroad terminals, at the power plants of the electric-lighting companies, and manufacturing establishments. It is interesting to note, further, that the catalogues of American manufacturers of machinery show illustrations of many American hoists and conveying machinery which have been installed by them in European countries.

European ports are frequently of such dimensions that the eye of the observer can readily mass the entire harbor, with its cranes, derricks, and vessels, into a single picture, presenting to the eye a whole which lends itself readily to a visual analysis of its various parts. This is not the case with New York Harbor, where five great cities—Manhattan, Brooklyn, Queens, the

Bronx, Richmond, forming Greater New York, and the New Jersey district—are combined into a great metropolis, with a shore front of 748 miles.

An exact analysis of the amount of water front, together with the amount of developed wharfage in the whole port of New York, as well as the developed wharfage in the city of New York proper, may be of interest and is tabulated, as follows:

New York wharfage table.

	Miles.
Straight water front in Greater New York	555
Straight water front in New Jersey	193
Total water front (straight) in port of New York	748
Wharfage developed of a straight water front of 100 miles in Greater New York	224
Wharfage developed out of a straight water front of 20 miles in New Jersey	133
Total wharfage developed in the port of New York out of a straight water front of 120 miles	357

The city of New York has developed 53 miles of wharfage room, including 232 city-owned piers.

The prudent observer would hesitate to form a quick conclusion regarding the equipment distributed over this expanse of shore front for use commercially or industrially. The combined crane and derrick installations of the principal ports of Europe could be distributed over this immense water front without materially changing its skyline or general physical aspect to the eye of the traveler sailing up the bay in the modern thousand-foot passenger steamship. The combined navies of the world would find safe anchorage in deep water within the limits of this harbor. At a recent naval demonstration or rendezvous the ships of the United States Navy, 131 in number, of all classes, from the largest warship to the smallest torpedo boat, were gathered in the Hudson River in the upper Manhattan waters. Their position had to be made known to the average New Yorker by the daily newspapers and the above-mentioned traveler would not see them until his vessel had proceeded 10 miles up the bay and North River. A trip along the immense water front of the North River, East River, Long Island Sound, the Staten Island and New Jersey shore will show the observer that many types of freight-handling machinery or apparatus used in the old world are in use in New York Harbor. There is, however, a notable difference in location or the placing of these mechanical devices. Where cranes, derricks, elevators, coal pockets, either movable or stationary, are found they are not installed at great expense in what may be termed batteries extending along the entire sides of piers, or along extended portions of the quay or bulkhead sea wall, but they are placed at such points along the water front or adjacent thereto, where their greater reach and capacity are required for a definite function, as, for example, handling heavy bulk at railroad terminals, power plants, manufactories, coal plants, machine shops, etc. It is impossible to give a complete description of each of the numerous power installations for handling cargoes within the limits of a necessarily brief report of this kind. There are given below, however, numerous photographic illustrations of the more important structures and apparatus used. Hundreds of minor structures, such as railroad gravity coal pockets, industrial lifting and hoisting apparatus of smaller establishments, have not been shown, owing to the lack of space.

EUROPEAN METHODS.

An examination of the methods in use in handling ship's cargo in Europe develops the fact that, notwithstanding the extensive and expensive installations of crane and derrick batteries at most of these ports, the following conditions generally obtain:

1. The most general use of the crane or derrick is to lift the cargo from the hold of the ship to the deck of the pier or quay, from which point it is moved by hand truck, horse dray, etc., to the warehouse, railroad car, or consignee's space, a small proportion only being handled directly from ship to railroad car.

2. The ship's winches are very generally used, notwithstanding the installation of cranes and derricks, and particularly are these used in handling cargo

over the side to barges, which is extensively done at such ports as Rotterdam and Hamburg, where a great deal of freight is transshipped by barges into the interior of the country on the Rhine and Elbe Rivers. At Antwerp one of the steamship lines uses the ship's winches exclusively, notwithstanding the fact that an extensive crane equipment has been supplied by the municipality.

3. Few mechanical devices are found at European ports to move freight over the surfaces of the pier deck after the crane has deposited it. Two and four wheeled hand trucks and horse drays are used almost entirely for this movement, and motor trucks have not been used to any extent. Portable electric winches also are scarcely used at all. It should be remembered in this connection that the great crane and derrick installations at European ports are generally made by and at the expense of the municipal or State governments having jurisdiction or control over the harbor, and not at the expense of the steamship companies occupying the piers. These derricks and cranes are rented out to the steamship companies with an operator, very much the same as the pier sheds or wharf space is rented out.

It would seem from the foregoing that as far as the freight-handling facilities at steamship piers are concerned New York Harbor differs from European ports only in that it has no great crane or derrick batteries, and further that in the matter of machinery, appliances, or methods to reduce the expenses incident to sorting and distributing cargo over the pier deck or quay area, which is the greatest cost factor in the price per ton of handling freight, European ports are at least as lacking in them as is New York.

CLASSIFICATION OF MARINE SHIPPING.

The shipping of New York Harbor may be divided into six classes:

1. The trans-Atlantic passenger line service carrying package freight.
2. Trans-Atlantic and general seagoing steamship service not dependent on passenger schedule. This includes tramps.
3. West Indian and South American service.
4. Coastwise service.
5. River, harbor, and Sound lines for passengers and freight.
6. The general harbor transportation business, including all types of lighters, barges, canal boats, railroad car floats, floating grain elevators, coal loaders, etc.

A correct conception as to what facilities would be necessary to more economically handle these various classes of freight must be based upon an intimate knowledge of the natural movement of freight in reaching and leaving the harbor water front, methods of conveying to and from the ship, railroad warehouse, etc., final conclusions and recommendations being based upon an analysis of the existing conditions and present methods of freight handling in New York Harbor.

CARGO HOISTS AND METHOD OF OPERATION IN NEW YORK HARBOR.

Practically all merchandise or freight, whether in or out bound, reaching the steamship pier in New York Harbor must be sorted for various purposes. Incoming freight must be sorted by the marks for weighing, gauging, customs inspection, delivery to consignee, etc. Outgoing freight must be sorted and stored on the dock according to its bulk, perishable nature, etc. Where a vessel makes several ports it is necessary also to sort the cargo by ports. A large amount of bulk cargo for export does not come on the pier at all but is loaded directly into the ship from a lighter. The conditions governing the movement of package freight are in the main so nearly identical for all classes of vessels that the methods of handling employed differ only in the minor modifications of the same system. Practically identical methods are employed by all the trans-Atlantic lines in loading and discharging cargo and in coaling. Some of the coastwise, South American, and West Indian lines have special features not applicable to the larger vessels, and these will be referred to later. The piers in New York Harbor in many instances are supplied with steam or electric portable or stationary winches placed at convenient intervals along the sides of the pier for use opposite the ship's hatches. Cargo masts or cargo hoists are placed along the sides of the piers, and the following is a brief comparison of the methods employed in European ports and in New York Harbor.

In most of the European ports, the great bulk of freight which is being moved from the ship's hold to the quay or pier, or the reverse movement, is done by means of dock cranes. These cranes are operated either by steam, electricity, or hydraulically, and they are usually able to move a certain distance along the

pier in order to get the most advantageous location for the hatch to which they are working. Frequently the ship's winches are used to hoist the cargo from the hold to the deck, and from this point the dock crane picks the cargo up and places it on the pier. In many instances, however, the dock crane reaches directly into the hold, and in one movement lifts the cargo, swings it and places it on the dock. This involves the swinging of the boom of the crane, and there is a certain loss of time which must be experienced in locating the boom in the correct position to lift the cargo and then swing it into the correct position in order to deposit it.

The general practice in New York Harbor, in the newer pier installations, is to place what is known as cargo hoists along the sides of the piers. These are nothing more than structural steel bridges extending above the sides of a pier, to which may be attached pulleys or blocks practically at any point along the side of the pier. (See Fig. 1.)

The method of handling cargo is to rig one of these blocks directly over the door on the pier through which freight is being handled, and to place a block on one of the ship's masts directly over the hatch in the ship which is being worked. A line is passed from a winch either on the ship's deck or on the pier through a block directly over the hatch, and this line is attached beyond the block to another line which is run from a winch through a block on the cargo hoist of the pier ,and near the point of junction of these lines there is placed a hook. In discharging cargo from the hold of a ship, the line passing through the block on the pier is left free the cargo is lifted out of the hold by the winch operating through the block on the ship's mast above the hatch. When the cargo is clear of the ship's hatch and deck, the line from the winch operating through the block of the cargo hoist on the pier is brought into action by slackening the line passing through the ship's mast block and by taking up on the line passing through the cargo hoist block, the cargo is brought directly beneath the block on the cargo mast and is lowered from that to the deck of the pier. This is an exceedingly simple and effective method of handling cargo. It is very positive in its action, for when one line only is carrying the hook is directly in position over the hatch and when the other line is carrying, the hook is directly over the door in the pier shed. There is no swinging of booms to be carefully gauged, and there is no doubt of the location where the cargo will be when either one line or the other is carrying.

In short, nothing moves but the line and the great advantage of this has been recognized, not only by the steamship companies but also by those who have carefully observed the loading and discharging of cargoes by the dock crane method and by the use of ship's mast and cargo hoist. Foreign engineers and others who have at first commented upon the inadequate methods of handling cargo in New York Harbor, when our methods have been drawn to their attention have usually expressed surprise, and later great interest in the excellence of the methods employed here. It is significant also that in constructing piers in this country by some of the foreign steamship lines, they have equipped these piers with cargo hoists and portable winches in preference to installing dock cranes, such as have been provided for them by the port authorities at their terminals in Europe.

On very many piers in New York Harbor, however, the cargo hoists have not been placed, particularly in the older piers; and sometimes masts have been erected along the sides of piers with cable between, extending along the side of the pier, to which to attach blocks; where neither of these have been provided, it is the custom for one of the ship's masts to be rigged directly over the door of the pier so that the same method of operation is carried on by means of the ship's tackle itself. It is not unusual to use one of the ship's masts to discharge cargo by lifting from the hatch with one of the ship's masts and swing it onto the pier by the motion of the mast. Various modifications of this general method, which is believed to be the best one in use, and these, in a general way, are shown in the diagrams on page 12. It is believed that, although the cargo-hoist method may not be able to lift quite as large a load as the dock crane, yet by its use cargo can be discharged or loaded with greater rapidity than by any present known method.

Most of the dock winches are double drum with "niggerheads" at each end, permitting the operator to lift two loads with one dock winch. Their size varies from 18 to 35 horsepower. The capacity varies from 20 to 40 cycles per hour with loads ranging from 300 to 2,000 pounds.

While this loading is proceeding on the dock side of the ship, frequently coaling is done from barges lying on the water side of the ship or between the

ship and the side of the pier. While cargo is being discharged from the ship onto the pier, or the reverse movement, floating grain elevators, derrick lighters, and barges are loading to or from the ship on the water side. (See Figs. 13 and 14.) Coaling may also be under way and this is generally done by floating coal elevators and bucket conveyors, which mechanically lift coal from the barge and deposit it directly into the ship with little or no manual labor. Incoming freight is wheeled generally by hand truck to space reserved on the pier deck for the various marks or consignees, for customs inspection, weighing, gauging, or railroad shipments, etc. Some steamship lines occupying two or more adjacent piers deposit incoming freight on the deck of one pier, and the vessel is then warped across the slip to the second pier, upon which outbound freight has been accumulated. Outgoing freight reaches the pier by horse dray, railroad-car float, lighter, or barge with or without derrick, steam floating derrick, etc.; and a considerable amount of sorting is done on the pier. Reference has been made to sorting for different ports; and in several cases, notably the Tyser Line to Australia, touching at 10 ports, an elaborate system of marking cargo has been initiated, the pier being divided into 10 or more zones for receipt of cargo for the various ports to be touched. Since comparatively few railroad connections to and upon the piers and bulkheads exist, the reach inboard of a derrick boom would be of value only in depositing freight brought from the hold over a greater area of the deck surface, or picking up outgoing freight from a greater area. The quantity placed in the hold, however, is limited by the space available to deposit it before stowing and the number of men who can work to advantage in the hold without interference. The same applies to unloading. The gang on the pier can generally work faster than that in the hold of the ship. The loading and discharging of vessels in New York Harbor is generally done by contract with a stevedore at a fixed price per ton. This price varies from 28 to 40 cents a ton, and a good general average approximates 35 cents per ton, and by far the greater portion of the cost is occasioned by the necessary sorting of the freight by expensive hand trucking over the deck of the pier.

COASTWISE, ETC.

The American-owned ships engaged in the coastwise, Cuban, West Indian, and South American service are different in some respects from the trans-Atlantic vessels. Many of these vessels have from three to four decks with large side ports leading to the second deck, which permits direct trucking by hand or autotrucks from the deck of the vessel to the pier, the side ports being not at a greatly different level from the deck of the pier. (See Figs. 15 and 16.)

Elevators and small power cranes lift freight to the various deck levels and are often supplemented by additional winches on the main deck with derrick booms rigged to the ship's masts for direct loading to and from floating lighters or other vessels. All of this apparatus may be used simultaneously. The Old Dominion Line, occupying piers 25 and 26, North River, plying between New York and Norfolk, is particularly well equipped. Storage-battery trucks run from the pier deck into the steamers through the side ports, and electric dock winches are used also in loading and unloading. The piers are two-story structures, well equipped with elevators, reversible escalators with power cranes on the upper decks to load trucks standing on the lower deck, chutes from the upper deck to load drays standing on the bulkhead, etc. Electric dock winches are used to load and unload lighters and scows which are not equipped with power. There are daily sailings, which necessitates the loading and discharging of about 3,300 tons of merchandise in about 15 hours, at an average cost of about 35 cents per ton. About 1,000,000 tons of freight is handled here annually.

River, Sound, and harbor freight reaching the piers is handled almost entirely by hand truck and dray. Much of this freight is, however, handled from and to lighters and steam derricks alongside the vessels. Many of these vessels load on the main deck only, this deck being inclosed by housing, large doors or ports permitting trucking into what might be termed the "hold" thus formed.

RAILROAD FREIGHT.

In the case of railroad freight, as with almost all other freight handled in the harbor, much sorting is necessary. A railroad freight station generally consists of one or more piers adjacent to or connected by a bulkhead shed with receiving platforms.

Railroad cars with freight for Manhattan are placed on car floats at the New Jersey terminals and floated over to the railroad piers in Manhattan, usually during the night or early morning. The freight is usually taken out of the cars by hand trucks and stacked on the piers, and much hand trucking is here necessary. The consignee is allowed a certain length of time, free of storage, in order to permit him to come for his freight, after which time the railroads usually take the freight to some warehouse and charge the consignee with the expense. Much delay and expense results to the consignee owing to the crowded conditions of the piers and to the congestion not only of freight but of trucks. Westbound freight is usually delivered to the bulkhead or receiving platform, where the freight is weighed, sorted, and marked for a certain car. The car floats are backed up against the bulkhead, sometimes two or three end on, and freight is wheeled from the bulkhead shed by hand truck to the particular cars which are marked for some city or distributing station along the line of the railroad. It is frequently necessary to wheel by hand truck freight as much as 700 feet along the central gangways of these car floats. It would seem that the installation of mechanical handling apparatus at these stations, together with the rearrangement of methods of receipt and delivery by cooperation between the shipper and the railroad company, would result not only in direct saving and expense to the companies, but to the manufacturer as well, by avoiding the unnecessarily long waiting of trucks and teams along the marginal way, due to their inability to discharge their loads.

Careful consideration should be given in this connection to the fact of the needless exposure for hours of drivers and animals to the severe winter weather prevailing along the water front of New York Harbor, which probably annually kills many men and horses engaged in the trucking business. Many are driven to the saloons to keep warmth in their bodies, and in this condition they are unable to give full value of their services to their employers. As a result, more teams and more men must be employed to perform the same amount of labor, and in this way the consumer pays the higher cost of the commodity. This is a matter for serious consideration and can not be regarded lightly.

FREIGHT HANDLING AT MARINE TERMINALS.

Many private terminal companies are operating throughout the harbor, and these companies handle freight with every one of the New Jersey railroads as well as with all of the steamship lines, and in the case of railroad freight they usually have transfer bridges in order to bring the railroad cars on land, where the freight may be unloaded and where the cars may again be reloaded. Notable among these companies are the Bush Terminal Co., the New York Dock Co., the Jay Street Terminal, the Brooklyn Eastern District Co., and several smaller companies in the Harlem district.

In the Borough of Brooklyn two great steamship terminals have been organized through private enterprise—the New York Dock Co. and the Bush Terminal Co.

The New York Dock Co.'s plant extends in practically an unbroken stretch along the East River and Buttermilk Channel from the Brooklyn Bridge on the north to the Erie Basin on the south, a distance of about 3 miles. Forty piers and a large grain elevator are built along this water front paralleled by 200 warehouse buildings for storage, a large part of which is devoted to the storage of Brazilian coffee, for which this terminal is considered the market. New modern reenforced concrete buildings are now in course of construction for warehousing and factory purposes, and cold storage is being provided. A double-track marginal railroad with car-float bridges for direct connection with the trunk lines in New Jersey and Manhattan is laid along the marginal street extending along most of this development between the piers and the warehouse buildings, but this railroad system is divided into three parts, by Atlantic Avenue and Hamilton, over which no direct rail connection is made.

In the improvements contemplated by this department elevated connection is provided for over these avenues, so that there will be an unbroken line of rails over the whole frontage.

The following are the principal steamship lines located at this terminal: Booth Steamship Line, to Brazilian ports; Lamport & Holt Line, to Brazilian ports and Argentina; Red "D" Line, to Venezuela and Porto Rico; New York & Cuba Mail Steamship Co., to Cuba and Mexico; Pierce Line, to Mediterranean ports; Anchor Line, to Mediterranean ports; Trinidad Shipping & Trading Co.,

to West Indies; Insular Line, to Porto Rico; Clyde Line, to West Indies; New York & Porto Rico Steamship Co.; Uranium Steamship Co., to Hamburg; New York & Demarara Steamship Co., to West Indies; Prince Line, to Brazil; Funch Edye & Co., to Brazil; and the Tyser Line, to Australian ports.

The principal cargoes consist of coffee and sugar in bags, cocoa, and Brazil nuts, and the Mediterranean vessels carry large quantities of macaroni, fruits, wines, etc.

Southerly of Gowanus Canal are located the two largest piers in the harbor, one at the foot of Thirty-first Street, 1,475 feet in length, leased to the Fabre Line, operating to Mediterranean ports, and the other at the foot of Thirty-third Street, 1,616 feet in length, owned by the city of New York for general wharfage. These piers are owned and were built by the city and are equipped with single-story sheds and, in the case of the latter, with a sprinkler system.

The Bush Terminal Co.'s plant lies south of these piers, and the piers extend from the foot of Fortieth Street to Fifty-first Street. Buildings for warehousing and manufacturing, which are a part of this great terminal, are located inshore and extend or are planned to extend from Twenty-eighth Street to Fifty-first Street. This is the most complete terminal development in the harbor and probably on this continent. The seven piers average 1,250 feet in length. A marginal railroad has been constructed connecting on the water front with transfer bridges having a classification and assembly yard and with spur connections to the piers, to the warehouses, and to the factory buildings in the rear, tying the whole together as a unit. Modern reenforced concrete factory buildings with power have been constructed in this terminal, and there are at present about 155 different kinds of manufactories in these buildings. The piers are occupied by six regular lines to Europe and South American ports and many so-called tramp steamers are berthed here.

Steamship lines docking here are as follows:

Austro-American Steamship Co., New York and Mediterranean ports.
Norton & Son, New York and South American ports.
Funch Edye & Co., New York and West Indian ports.
Prince Line, New York and Calcutta, Bombay, etc.
Lloyd Brazileiro, New York and Brazil.
American-Hawaiian Line, New York and San Francisco and Hawaii by transshipment through the Isthmus of Tehuantepec.

The principal cargoes consist of coffee, dried fruits, cocoa and citric fruits, etc., from the Mediterranean.

The general method of loading and discharging steamers at the terminals of the New York Dock Co. and of the Bush Terminal Co. is practically the same as that described before. Portable electric dock winches are used to assist the ship's winches and to unload lighters and barges. At the Bush Terminal the incoming freight is received in the following average proportions:

	Per cent.
Destined for the warehouse, about	30
Destined for railroad shipment in carload lots, about	25
Destined for railroad shipment in less than carload lots, about	25
Destined for dray removal to consignee, about	20
Total	100

It will be seen, therefore, that only about 25 per cent of the incoming freight could be landed directly from the ship to the railroad car, and taking into account the delay caused by the customs inspections, sorting, etc., it is an open question whether special machinery could be worked to advantage, and while the derrick or crane would be useful for this service, they could not be used elsewhere. Freight destined for warehouses is hauled usually on low flat horse trucks. (See fig. 20.)

One horse will keep three of these trucks continuously under way; two horses will move five trucks. While the horse or mule is under way with the second truck, the first is being unloaded by the warehouse "whip" and the third is being loaded at the barge, lighter, railroad car, or ship, and the operation is very nearly continuous. While this method appears to be cumbersome and obsolete, it is more economical here than the modern electric-crane truck with trailers. One of these electric motor crane trucks at a cost of $2,500 plus the salary of the driver, plus depreciation, etc., would be required to perform the same amount of work as the horse and truck, aggregating $500 in cost. The

crane trucks with trailers are here used mostly to load or unload cars where heavy lifting is required or on long hauls between dock and warehouse.

The warehouse buildings are five or six stories in height and are equipped with freight elevators and with bag and barrel chutes. The use of elevators for freight has been practically discontinued, for the reason that it is slow and uneconomical. Most of the freight is hoisted to the warehouse floors by the use of "whips," that having been found the most economical and rapid method. Electric winches are placed on the marginal road in front of the center of each of the warehouses and about 75 feet from the building, and each winch controls from two to four "whips." (See figs. 22 and 23.)

Eight hundred bags of coffee, averaging 130 pounds each, have been raised by a single "whip" in an hour.

Investigations made by the Bush Terminal Co. during a number of years, with a view of cheapening the cost by the installation of mechanical appliances and machinery, have not resulted in the placing of any machinery whatever, the conclusion being, apparently, that on account of the great amount of sorting required no present known form of installation would have sufficient elasticity to be economical. The electric motor crane truck with trailers, however, has been found generally efficient, especially for lifting heavy weights and loading cars for long hauls between dock and warehouse.

The New York Dock Co. has installed at the foot of Baltic Street a telpher system for transporting freight between a railroad station, a warehouse, and lighters. The installation is not extensive enough to demonstrate the efficiency or economy of more extensive terminal equipments of this type.

Inspection of the plant mentioned and discussions on the spot with officials in charge have brought forth the following statements and data:

The Bush Terminal Co. states that an investigation covering a period of several years for the purpose of installing cargo-handling machinery has resulted in the conclusion that present mechanical devices lack flexibility and would not be economical to install on account of the great amount of sorting required. The hand truck is the best for short hauls. Storage-battery crane trucks of 2,000 pounds capacity with trailers are economical for long hauls, for loading cars, etc., and where lifting is required. The "whip" operated from an electric dock winch is the most rapid and economical method to convey freight from the dock level to the warehouse floor. The horse or mule serving three trucks at one time is more economical than the autotruck for average length of haul. No derricks or cranes are required; they would be in the way. The hand truck is considered the best method of handling in sorting freight on the pier for average distances.

The New York Dock Co. is not extending its small telpher and transfer installation. Lack of flexibility is stated to be the cause. The new buildings under construction are not to be provided with mechanical devices other than elevators and electric winches for "whips." Derricks or Gantry cranes, traveling along the piers, would have no function other than the ship's winch. Electric-motor trucks are good for long hauls or bulk; horse and hand trucks are generally cheaper on short hauls and on account of the great amount of sorting of the various marks required.

The Old Dominion Steamship Co. has installed a telpherage system at their Richmond terminal; this has been found of use only in handling a single commodity when shipped in bulk in similar packages. It is not economical to handle general package freight by it. At their New York piers electric storage battery trucks of 2,000 pounds capacity handle about one-eighth of the 1,000,000 tons per annum handled by the company; they are used on long hauls only and for large consignments of similar packages of small bulk. The piers are two story, equipped with adjustable ramps, many electric winches, elevators, reversible escalators, chutes to loading drays—thereby utilizing the second story to fullest capacity. It is intended in the future to equip the ramps with the Reno type of hand-truck conveyer, consisting of projecting hooks traveling on an endless chain, engaging the hand-truck axle and pulling it up the ramp incline. The most efficient method of moving over the surface of the pier under the present conditions of freight receipt is the hand truck. Derricks or cranes are not wanted; their function is the same as the dock winch. The company has decided that telpher or transfer are not flexible enough to be economical on account of the great amount of sorting required. Reversible escalators, running by steam power, handle 150 bales of cotton per hour, against 50 bales by elevator method formerly used to lift to second floor. Lighters are loaded and discharged by aid of electric dock winches installed on raised platforms.

Ships have side ports for loading to lower decks, enabling autotrucks to travel directly into the hold to and from the dock.

Two electric autotrucks of 2,000 tons capacity are in use by the Mallory and Clyde Lines (coastwise) for handling bulk or large consignments of similar packages on long hauls only, as, for example, oil in barrels from the ship's hold direct to the marginal roadway, a haul of six to eight hundred feet. A small proportion of freight only is handled by the trucks.

Pier 20, North River (Erie Railroad), is used exclusively to handle fruit; the great bulk of California fruit is discharged here; this arrives generally in carload lots and is unloaded from the car, standing on the car-transfer float, to the dock by hand truck and sorted by consignment. Gravity roller conveyors were used experimentally and discarded as not economical. Autotrucks were tried experimentally and discarded for the main reason that the platform extending longitudinally along the center of the car floats was too narrow to allow two autotrucks to pass.

Pier 6, Jersey City (Erie Railroad), is used as a transfer station for mainly westbound freight, and the system of operation should be carefully noted. The operations here will no doubt furnish important facts which will be useful in the final solution of the mechanical distribution on the pier deck. Excellent results have been obtained here by the introduction of electric storage-battery trucks of about 2,000 pounds capacity. The use of 20 of these trucks has resulted in a reduction of labor required from 80 to about 35 men.

Figures 26 and 27 show a layout of the pier. Freight is brought to the pier on track No. 1, carted by hand trucks to the sorting platform, on both sides of which are assembled the electric trucks labeled with a number corresponding to a similar label hung up on the various cars or groups of cars standing on four tracks on the opposite side of the pier. Communication over the four tracks is maintained by placing box-car doors opposite, thus forming a transverse passage. The autotruck goes inside of the car to discharge its load. The approximate reduction in cost of handling is about 9 cents per ton; about 700 tons of freight are handled daily. It would seem that an extension of this plan could be adapted to general railroad freight handling in New York City in connection with car-float delivery.

Pier F, Erie Railroad, Weehawken, N. J., is used for general package freight. The pier is two-story, equipped with barrel elevators and steam platform elevators. The roller conveyor is used to some extent for unloading packages from cars. Will not handle heavy bulk; as a rule, hand trucking is more economical than the roller conveyer.

Erie Railroad, Pier H, Weehawken. This is an open pier for general freight. Tracks run the full length of the pier. General merchandise is loaded to and from cars and lighters, barges, etc., by 15-ton locomotive cranes running along the length of the pier. A 20-ton locomotive crane loads and discharges cars and barges at the bulkhead on the south side of the pier.

D., L. & W. R. R., Pier 9, Hoboken. This is a reinforced concrete two-story building. Barrel elevators, helical and straight incline bag and barrel chutes and hydraulic elevators are used here. Three 2,000-pound capacity storage-battery trucks load and discharge directly from cars. The pier is used for flour handling.

Corn Products Co., Shady Side, opposite One hundredth Street, New York. The factories of the company are located approximately 1,000 feet from the water front. Practically all the products of the establishment, sirup in cases, barrels, sugar in bags, starch, etc., are carried to the river front by a moving floor conveyer or "endless freight carrier." The carrier is 2,200 feet in length, and consists essentially of a moving floor extending from the factory to the water front, traveling at the rate of about 50 feet per minute. Boxes, barrels, bags, etc., are simply placed on this floor; no further handling is required until the water front is reached. The entire apparatus is driven by a 30-horsepower electric motor.

Midland Linseed Oil Co., Shady Side, opposite One hundredth Street. This company is erecting a new steel hoisting tower at the outer end of its pier with an endless freight carrier over 2,000 feet long leading from the tower to the factory buildings 1,000 feet or more inshore.

GENERAL.

As has been stated before, the principal cost of handling freight is the trucking of it about the pier. The necessary rehandling incident to this is a

heavy item of expense also. The great difficulty about mechanical appliances in their present form is their lack of elasticity of movement, and until a perfectly elastic system and one which is not unduly complicated is found, little can be done to lessen the cost of present methods. Motor trucks and traveling platforms have been applied and have been successful to some extent, but they do not wholly solve the problem of economical freight handling about the pier or between the pier and the back lands. Telpherage or overhead conveyance has been tried on a few piers in this country, but so far has not proven successful in its present form.

This may be due to improper design or it may be that the principle is unsuited to the character of business done on the pier. It is recognized that it is very difficult to design any form of overhead conveyance which will be sufficiently elastic to meet the requirements of general commerce, but if a form of overhead conveyance can be designed which will be thoroughly elastic as well as not overcomplicated—that will receive freight from any point on a pier and transport it in one movement to any other point on that pier or to any building adjacent on the upland and to any floor in that building—it would seem that this would go a long way toward cutting out the hand trucking which, as before stated, is the principal item of expense. The possibility is recognized of great economies being effected along this line and mechanical engineers and operating men generally are giving attention to the problem of lessening these handling costs.

GENERAL CONCLUSIONS AND REMARKS.

1. It can be safely stated from the foregoing that the great movable derricks or cranes installed along the docks and quays in Europe are not adapted to economical handling of American package freight under the present system of pier construction in New York Harbor.

2. It can be shown that the greatest cost factor in freight handling at steamship terminals is the trucking required to sort the package freight after it has reached the pier or quay level. Europe is as bad off, if not worse than the United States, in mechanical means of performing this part of the work.

3. It is in this requirement, to distribute over the pier deck, that the greatest saving in cost can be made. Contemplated new pier construction should be planned to facilitate this movement over the pier deck, means being provided to utilize both decks of two-story piers to the fullest advantage.

4. It is important to remember that the modern tendency is to consider the water front of a harbor a connected whole, a terminal or group of terminals, planned for the benefit of the community at large. This may result in the connection of piers or groups of piers by marginal railroad tracks, making loading to and from cars a more common method of handling cargo than it is at the present time, and resulting in a perhaps economical installation of Gantry cranes and derricks.

5. A reluctance to depart from old and tried methods, together with the increased cost, seems to be a stumbling block to the introduction of improvements in many instances. New devices are received with suspicion, particularly by employees, and are often not given a fair trial. Lack of study of the necessities of the particular class of business results often in poorly planned installations.

6. The modern telpher and transfer may in many instances be made adaptable to the movement over the surface of the quay or pier deck. If combined with reversible escalators and chutes, an efficient economical method of handling may also, in some instances, be evolved by a study of the requirements of the particular steamship or railroad line involved. By adjustment between the shipper and carrier of methods of delivery and removal of goods from the pier such installation could in many instances be much simplified.

7. Assuming that the length and physical construction of a pier is fixed by the length of the vessel it is to berth, the next most important feature to be considered in the design or layout is the economical and rapid handling of cargo reaching it.

The primary purpose of this report being to show what methods are in use in New York Harbor in freight handling, no recommendations are herein made for more extensive use of any particular type or class of the many excellent mechanical devices and apparatus manufactured. The foregoing general description of the functions required point the way, however, to the intelligent study of the requirements of each particular pier or group of piers.

Efficiency data obtained by close observation and classification of the movement of freight at a particular locality, where mechanical installation is contemplated, the tabulation of these movements under the classification of unavoidable, avoidable, unnecessary, obstructive, etc., with the careful determination of cost of each movement per ton handled, should readily show whether the possible saving in cost per ton, considered as interest on the proposed investment, would be sufficient to warrant mechanical installation.

There can be no question that the time has come for a more extended use of economical means of cargo handling. The loss in money, due to delays, caused by the congestion on piers, bulkheads, etc., with present methods, is enormous. A reduction in cost of handling after reaching the pier of only 2 cents per ton would result in an annual saving of half a million dollars on the foreign commerce alone.

ILLUSTRATIONS.

The city of New York, through its department of docks, exercises general control of all construction work undertaken along the water front of New York Harbor, whether it be undertaken by private parties or public authorities. Plans for all construction work of whatever nature contemplated by private or public interest along the water front are first submitted to the Department of Docks and Ferries for approval. These are carefully examined for structural stability, location with respect to established lines of improvement, public health, etc., by the engineers of the department, permit for erection of the work being granted if found to conform to established rules. Many hundreds of plans of structures are annually examined and reported upon.

The following pages illustrate some of the types of fixed portable and floating mechanical apparatus, derricks, elevators, etc., found. Some of these have been further illustrated by diagrammatic sketches showing the scheme of operation as far as possible. It will be noted that cranes of one or more types are in use by all the railroads in the harbor for handling general freight. Most of the more prominent installations are for handling materials in bulk, generally coal. Following these illustrations is given a list of the various types of harbor craft in use for freight transportation.

Acknowledgment is made to Philip Guise, assistant engineer, for valuable assistance in the preparation of this report.

Respectfully submitted.

B. F. CRESSON, Jr.,
First Deputy Commissioner.
CHAS. W. STANIFORD,
Chief Engineer.

DECEMBER 23, 1912.

List of harbor craft used for freight transportation in New York Harbor.

Towboats		537
Steam derricks and hoists		123
Lighters:		
Steam	169	
Steam derricks	62	
Open	195	
Covered	133	
Hand derricks	87	
		646
Barges:		
Deck	566	
Covered	385	
Coal	362	
		1,313
Car floats		217
Grain barges		88
Scows:		
Deck	683	
Derrick	73	
Coal	97	
Dump	112	
		975
Canal boats and miscellaneous		175

Fig. 1.—Cunard Line steamship "Carpathia" at Pier 54, North River, loading cargo by combined ship and dock winches.

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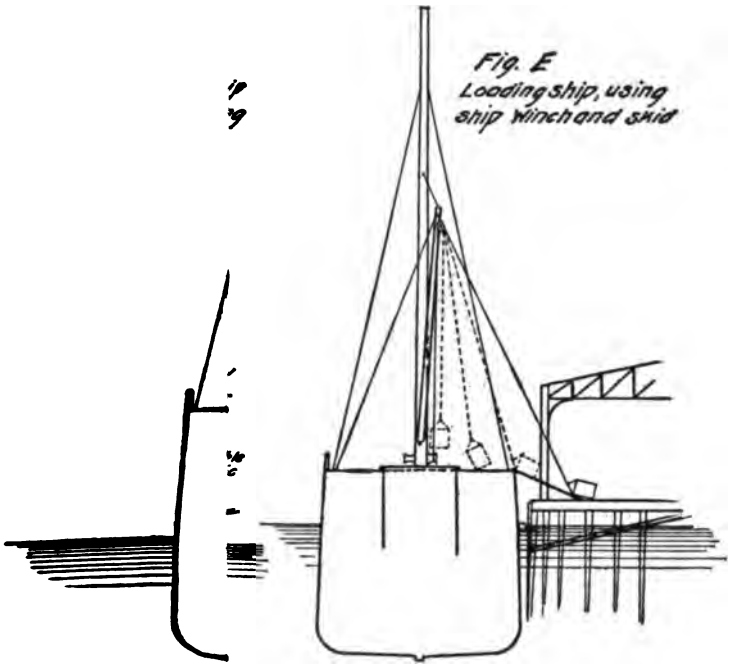

Fig. E
Loading ship, using ship winch and skid

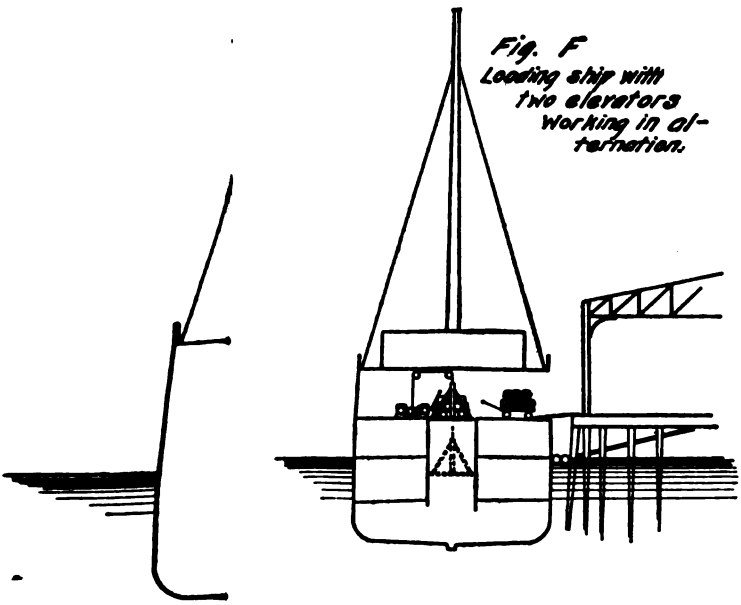

Fig. F
Loading ship with two elevators working in alternation.

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Fig. 2.—Chelsea piers, North River, showing dock winch and ship's winch hoisting freight.

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Fig. 3.

4 —Chelsea piers, North River. Discharging cargo by combined use of ship and dock winches.

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g. 5.—Portable electric dock winches, 20 horsepower, unloading cargo. Fabre Line, foot Thirty-first Street, Brooklyn.

Fig. 6.—Electric dock winch. Holland-American Line. 18 horsepower. Direct-current motor.

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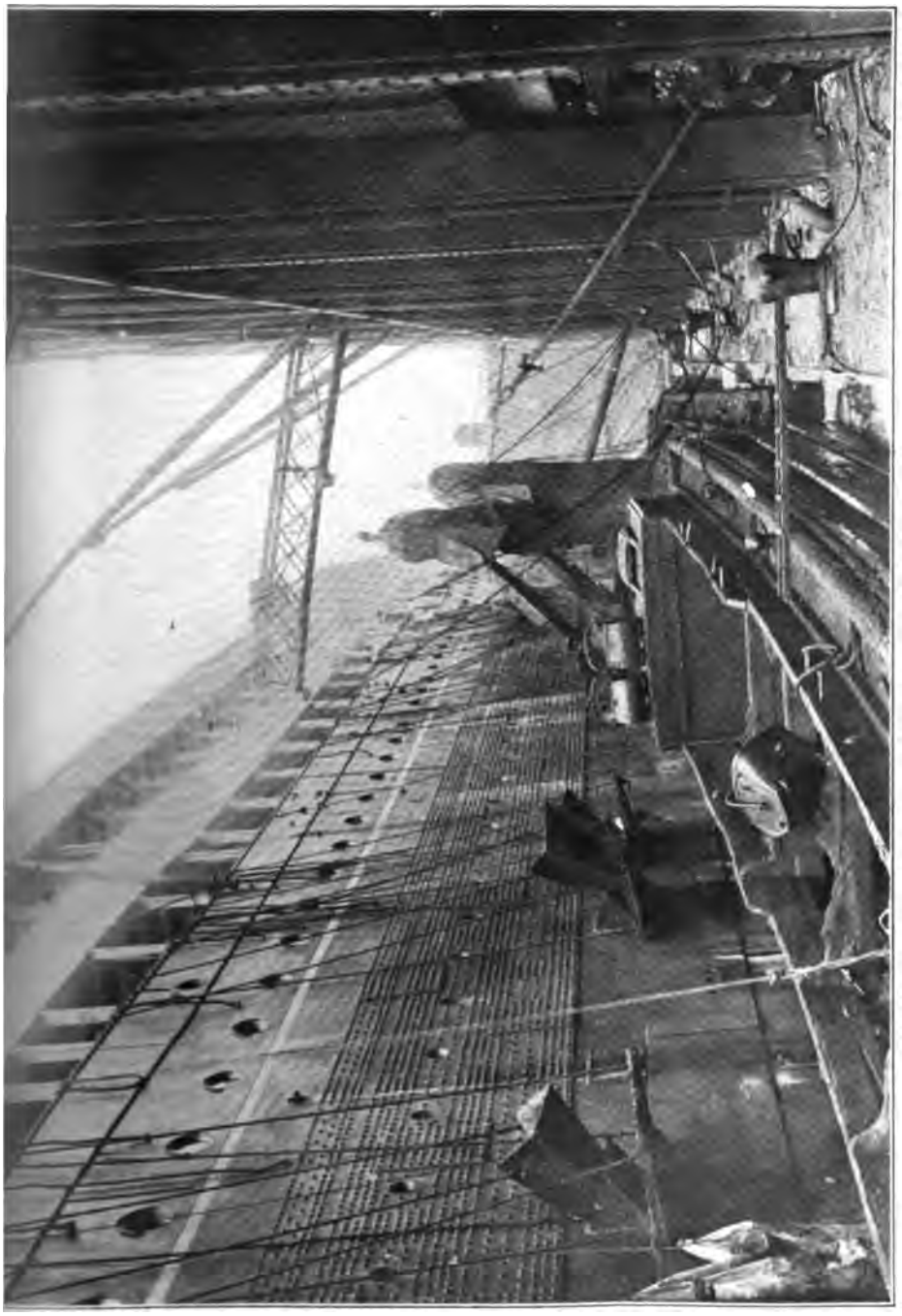

—C a ng ship. Portable bucket (conveyors) elevator on endless chain suspended from side of pier Swing chute is attached to elevator, discharging directly into bunkers. Elevator is driven by tr c motor connected to upper driving wheel. Current is brought from the pier by detachable wire, be "plugged" in at switches in place along the dock shed. This method in general use on pas- es. (See diagram.)

Fig. 8.—Coaling ship. Portable conveyors. (See Fig. 7.)

Fig. 9.—Coaling ship. Floating coal elevator "Pardee." (See Fig. 10.)

Fig. 10.—Floating coal elevator "Pardee." Pennsylvania, Beach Creek & Eastern Coal Co. There are five of these elevators in use in the harbor. Capacity, 1,000 tons; handles 100 tons per hour.

—Coaling ship, by use of electric dock winch and temporary mast rigged up on upper deck of ship.

—Coaling ship. Barges loaded with coal brought alongside. Floating steam hoister lifts dump buckets rigged to temporary boom on ship's upper deck.

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. 13.—Type of floating derrick in general use in New York Harbor for loading and discharging cargoes in bulk.

Fig. 14.—Ship loading from waterside by floating steam derrick.

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Fig. 14A.—Floating grain elevator. (See Diagram 71A.)

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5—Typical coastwise steamship. Steamship "Saratoga." New York & Cuba Mail Steamship Co. Note ...gh side rail opened, allowing freight to be hauled to hatch over skid by ship's winch.

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Fig. 16.—Old Dominion Line. Loading steamer through lower ports.

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F. 17.—Receiving station for west-bound freight. Delaware, Lackawanna & Western Railroad, North River.

18.—Canal Street freight station, Delaware, Lackawanna & Western Railroad. All freight is hand-trucked through open door, shown on right, to cars standing on car-transfer float.

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Fig. 19.—Loading merchandise into railroad cars standing on car-transfer floats.

Fig. 20.—Flat horse trucks. Bush Terminal and New York Dock Co., Brooklyn.

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F. 2' —Storage battery crane truck with trailers. Bush Terminal Co., Brooklyn. Lift capacity of crane truck, 2,000 pounds.

F. 22.—Showing "whip" hoists, operated by electric dock winches. Bush Terminal Co., Brooklyn.

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Fig. 23.—Showing portable electric winches operating "whips." Bush Terminal Co., Brooklyn.

8—Telpher for freight transfer from lighters to warehouse and railroad cars. Note raisable boom at bulkhead end of bridge.

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25.—Elevated electric hoisting winches. Old Dominion Steamship Co., Pier 26, North River. These winches are placed on raised platforms near door openings in the pier shed. Rope hoists lead to blocks suspended from roof trusses. Used to load and discharge cargo and for loading and discharging lighters and barges without power. Capacity, 2½ tons. 10-horsepower motors.

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Transfer Pier of Erie R.R. Jersey City, N.J.

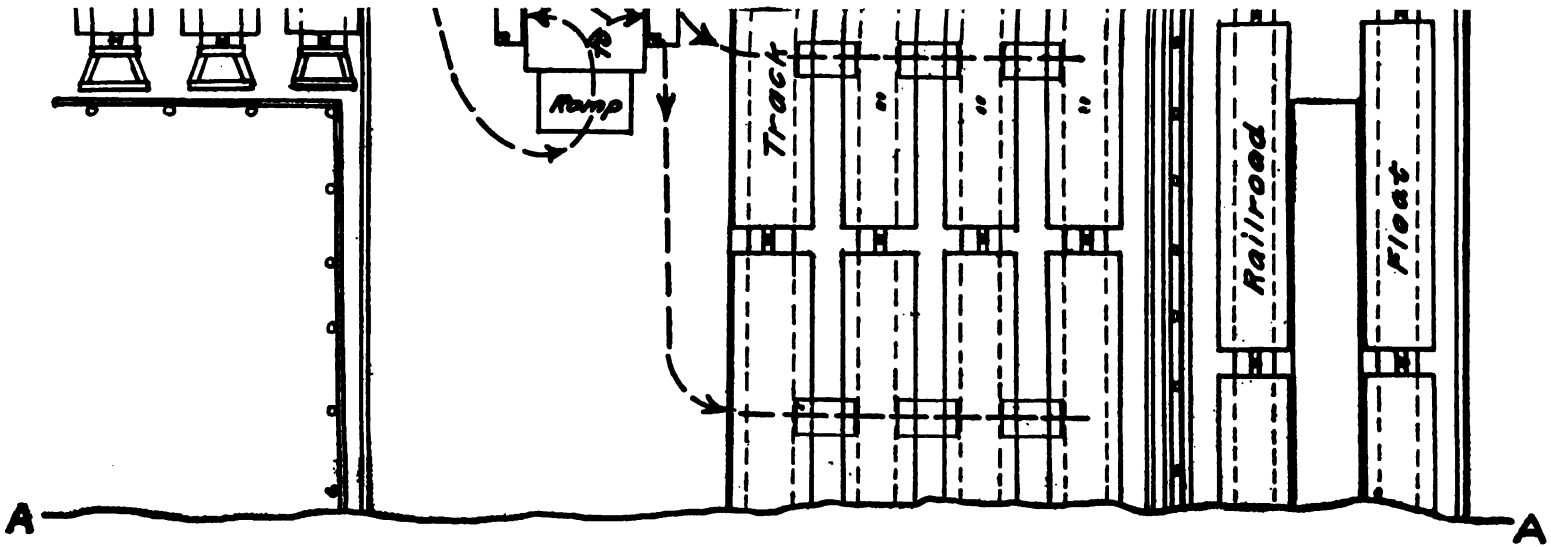

Fig. 27.

Fig. 28.—Electric storage battery trucks. Erie Railroad transfer, Pier 6, Jersey City. Twenty of these trucks are in use there. Capacity, 2,000 pounds.

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—Traveling cranes, Pennsylvania Railroad Co., Greenville terminal. Handles general freight from cars and vessels. Each crane spans three railroad tracks, and moves along dock under its own power. ity, 10 tons, by electric motors; booms can be raised in vertical plane. (See Diagram 29A.)

—Traveling direct unloader. West Shore Railroad, Weehawken. Movable booms, independent hoist, terrating-current electric motors. Handles loads 5 to 10 tons on each boom. (See Diagram 30A.)

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—Twenty-ton gantry crane, Delaware, Lackawanna & Western Railroad, Hoboken. (See Diagram 34A.)

Fig. 32.—Thirty-ton locomotive crane used for freight handling. Erie Railroad, Weehawken.

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Fig. 33.—Fifteen-ton locomotive crane for freight handling. Erie Railroad, Weehawken.

34—Stationary crane with trolley fall. Pennsylvania Railroad yard, Hoboken. Crane is stationary, blocks suspended from trolley run between two box girders. Electric power. (See Diagram 31A.)

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FIG. 35.—Locomotive crane, Pier No. 4, Delaware, Lackawanna & Western Railroad, Hoboken. Loads and unloads package freight directly from and into cars and vessels. Three of the cranes are at present in use. Capacity is 15 to 20 tons. (See Diagram 35A.)

FIG. 36.—Locomotive crane, Brooklyn Rapid Transit Co., Sixty-fifth Street, Brooklyn, terminal. Electric; capacity, 15 tons; four of these cranes in use.

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37.—Method of handling paper pulp by locomotive crane. Tidewater Paper Mills Co., foot of Thirtieth Street, South Brooklyn. (See Diagram 37A.)

38.—Traveling coal hoister and cable railway, Orford Copper Co., Constable Hook. Steam tower with [illegible] bucket, double-cylinder steam engines, 10 by 24 inches. Makes three cycles per minute. Handles about 1,000 tons per day. Length of tramway, 2,500 feet; double track.

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Fig. 29—Railroad car-float transfer bridge. Electric operation. Baltimore & Ohio Railroad, St. George, S. I. Note also traveling locomotive crane.

Fig. 30—Derrick, belt conveyors, incinerators, etc. Department of docks, city of New York. Reclamation of Ellis Island land under water. Grab buckets lift city refuse to screen over belt conveyor, which distributes along embankment.

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4' —L 'ting towers and belt conveyors. J. B. King & Co., Richmond Borough Plaster Mills. Broken stone lifted by grab bucket to hoppers.

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Fig. 42.—Coal hoist and ash conveyor. Metropolitan Street Railroad Co., Ninety-sixth Street, East River.

43.—Direct coal unloader and ash conveyor. Interborough Rapid Transit Co., Seventy-fourth Street, East River.

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Fig. 44.—Bridge crane and cable railway. New York Edison Co., Shady Side, opposite One hundredth Street, New York City. Two hundred-foot span, equipped with 2-ton bucket; covers 50,000-ton storage soft coal. (See Diagram 44A.)

Fig. 45.—Coal storage for power house. Kings County Electric Light & Power Co., Brooklyn, N. Y. Coal [illegible] 125 feet, cracked to size for automatic stoker, and deposited in storage bins over boilers. (See Diagram 45A.)

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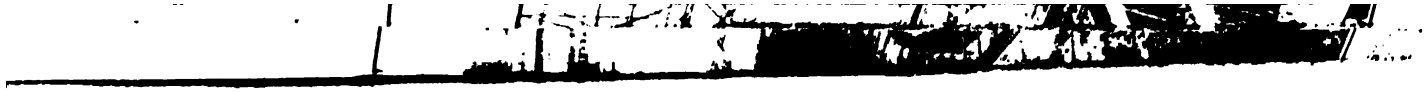

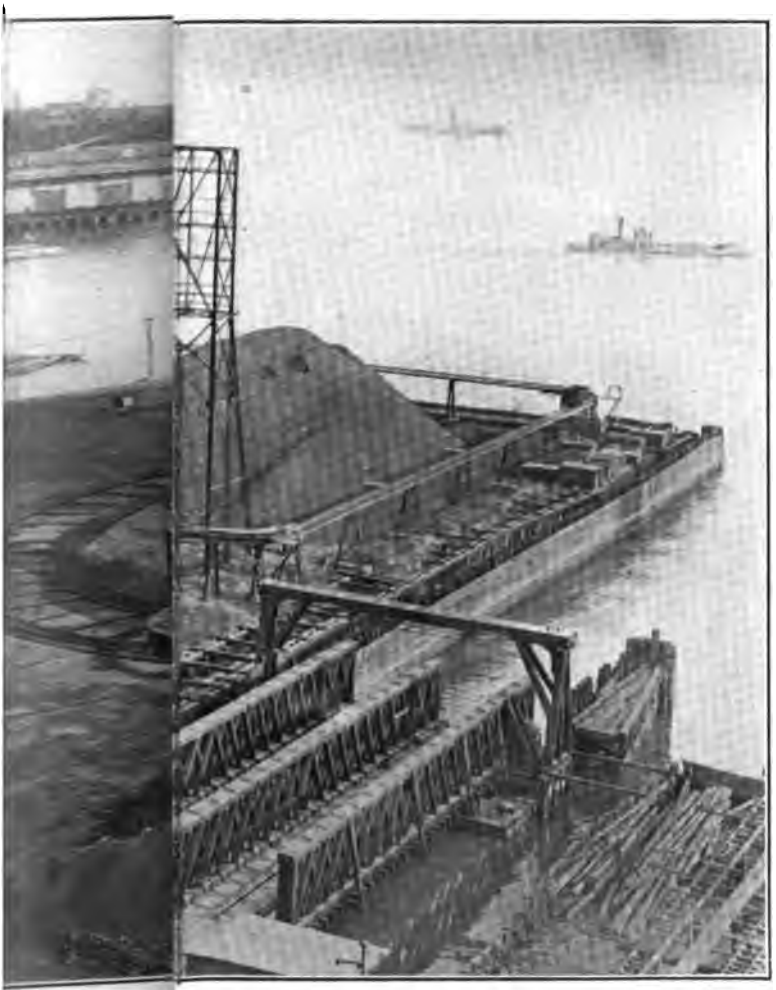

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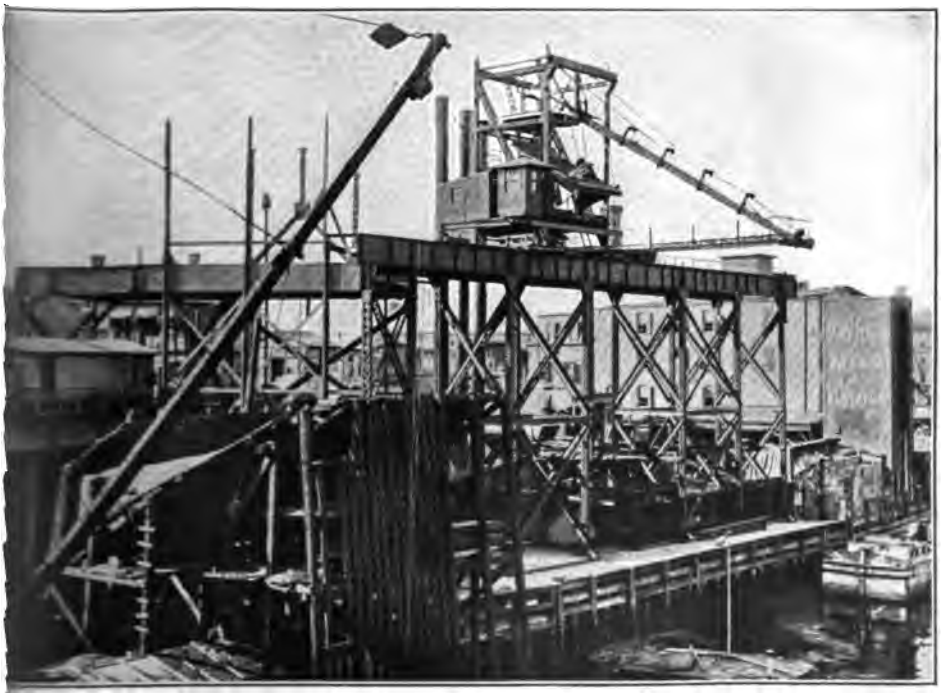
46.—Direct coal unloader and ash conveyor, Interborough Rapid Transit Co., New York. Stationary booms, trolley, and grab bucket. Discharges 5,000 cubic yards ashes per month. Unloads stoves and feeds 300 tons coal daily. Foot Seventy-fourth Street, East River.



47.—Direct unloader. Manhattan Elevated Railroad, One hundred and twenty-ninth Street and Harlem River. Moving tower, with boom and grab bucket.

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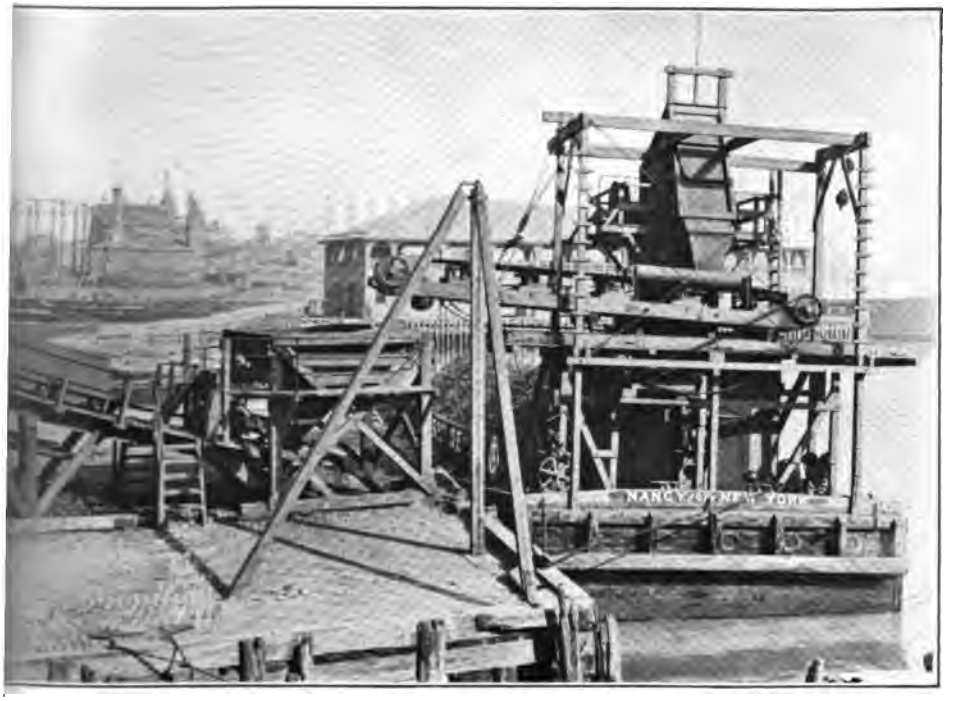

Fig. 48.—Automatic self-discharging coke barge. Consolidated Gas Co. (See Diagram 49A.)

49.—Pennsylvania Railroad Power Station (Long Island Railroad), Long Island City. Capacity, 700 tons per day. Storage capacity, 6,000 tons. Two-ton grab bucket lifts to hopper, delivers to crusher, to weigh hopper, to 2-ton cable cars, to coal bunkers over boilers, chutes to boilers. Ashes via chutes to ash cars, to hopper, dumping to bucket elevator to ash cable cars via chutes to ash pocket to railroad cars. (See Diagram 50A.)

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Fig. 50.—Power house, Long Island Railroad, Long Island City. (See Diagram 50A.)

Fig. 51.—Edison Electric Co., Shady Side. Direct unloader for coal storage. (See Diagram 51A.)

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[illegible]—Coal tipple, Delaware, Lackawanna & Western Railroad piers, Hoboken. Entire coal car with load [illegible] elevator, lifted to height of discharge chute, tipped and discharged into apron chute, discharging [illegible] coals.

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Fig. 53.—Coal tipple, Delaware, Lackawanna & Western Railroad, Hoboken, N. J. Handles 2,000,000 tons per year. Elevates and dumps entire coal car.

Fig. 54.—Coal pockets, U. S. Navy Yard, Brooklyn, N. Y.

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155 — Direct unloader. Glucose works, Weehawken. Automatic grab bucket, on adjustable boom, dumps directly into cars through hopper.

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Fig. 56.—Coal tipple. Baltimore & Ohio Railroad, St. George, Staten Island.

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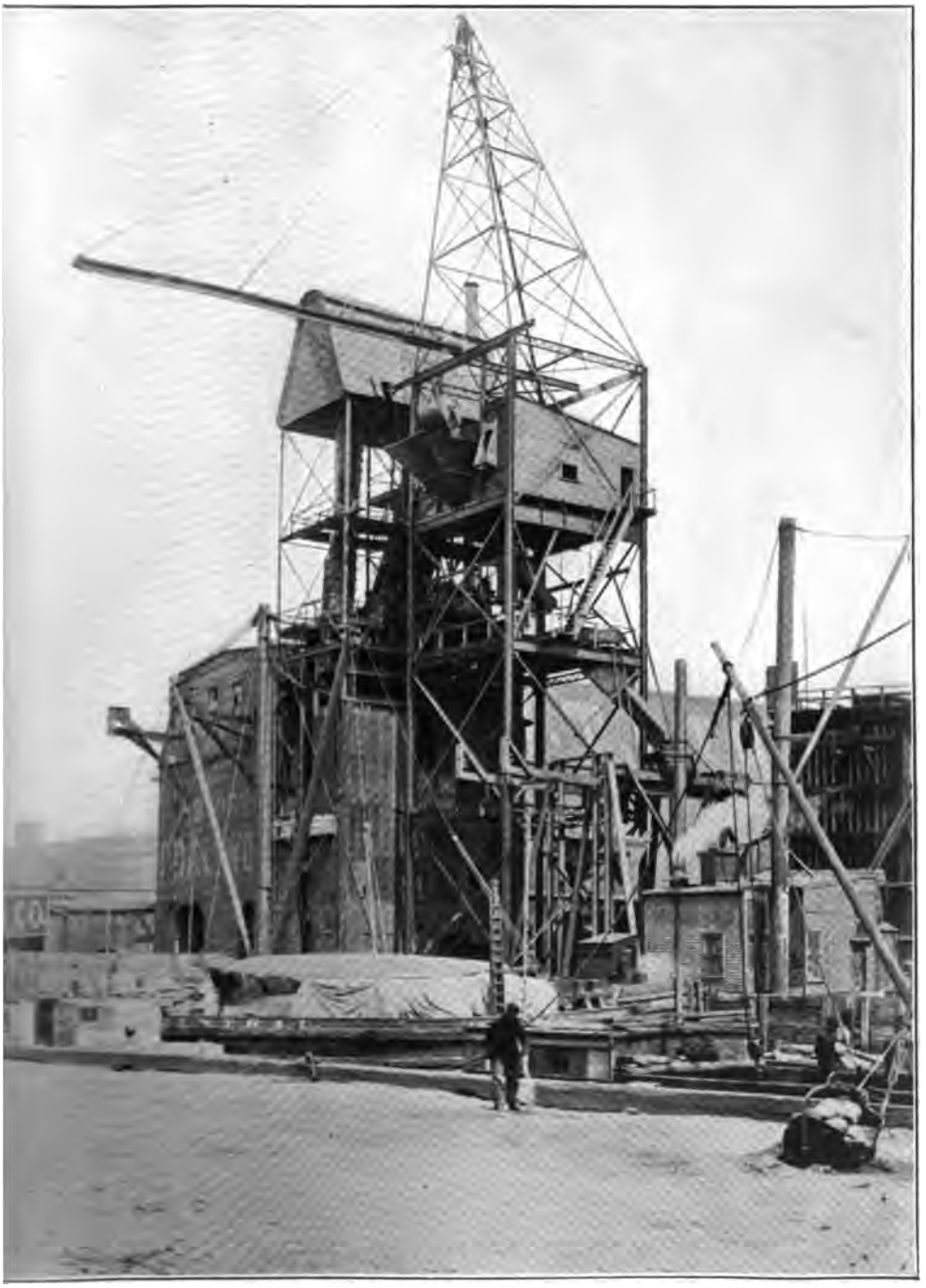

Fig. 57.—Direct coal unloader. J. T. Story Co., Wallabout Canal. Automatic grab bucket on stationary boom and trolley.

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. ⁵⁵ —Coal hoister and storage bin. Edison Electric Illuminating Co., Sixty-fifth Street, South Brooklyn. - sted from boats by grab bucket and delivered into hopper over crusher, thence by shuttle cable s to storage. From storage by bucket conveyor to power house.

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53.—Floating coal barge. Arbuckle Bros. Sugar Refining. Boom derrick in tower lifts coal to suspended adjustable chute, discharging in storage pile on shore. (See diagram 58A.)

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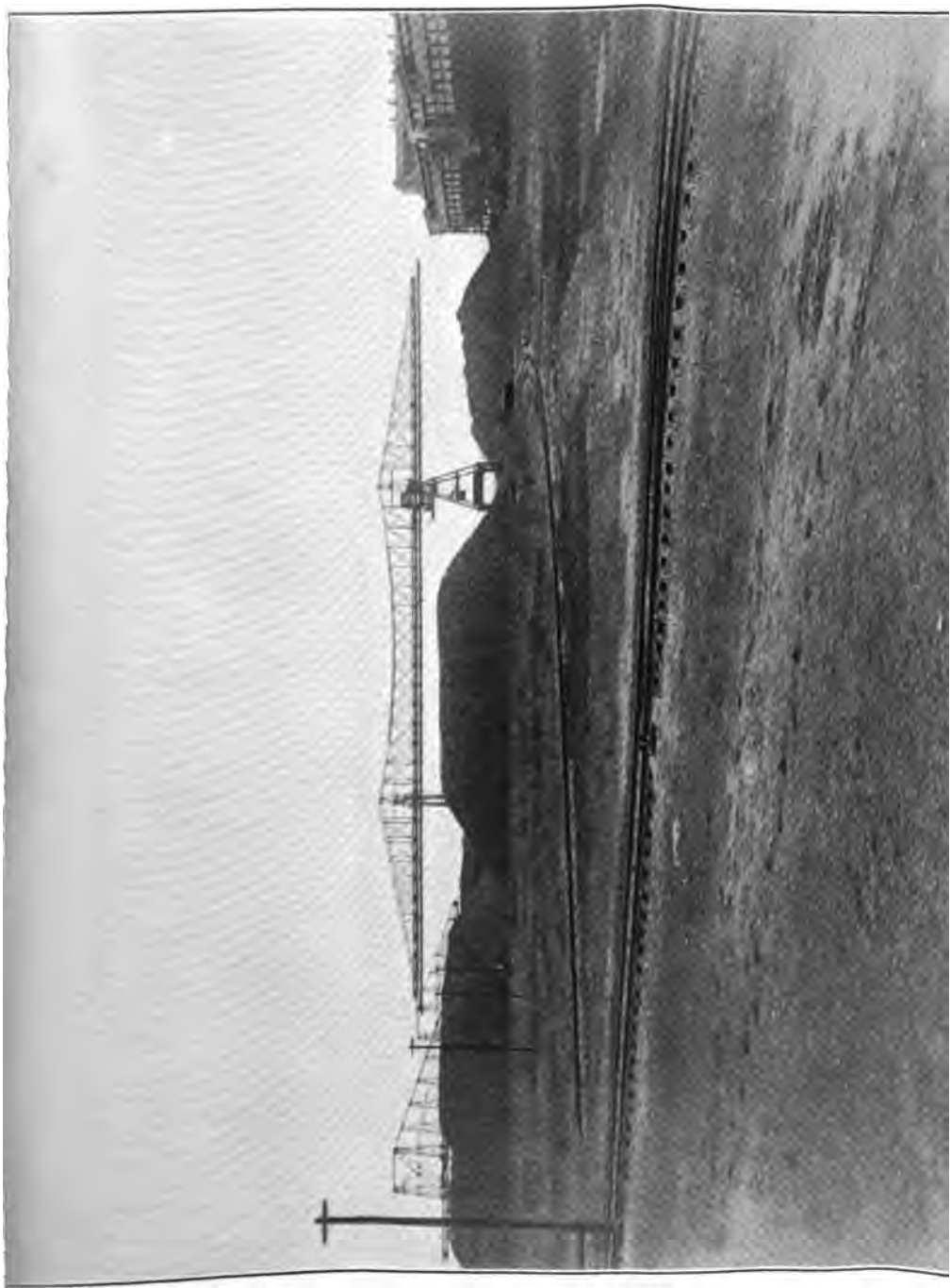

Fig. 60.—**Electric bridge tramway**, with 7-ton automatic grab bucket and man trolley, Astoria Light, Heat & Power Co., **Astoria**, Long Island. Capacity per hour, 200 to 300 tons, depending upon length of trolley travel. **Length of trolley travel**, 570 feet. Length of bridge travel, 715 feet. Coal taken from storage space, controlled **by the gantries** to space controlled by the bridge tramway, or to standard railroad cars, via hopper. Total **amount of storage** space controlled by the bridge tramway, 400,000 square feet, or 500,000 tons of coal.

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—Electric gantry, with 2-ton automatic grab bucket. Astoria Light, Heat & Power Co., Astoria, Long Island. Average capacity, 125 tons per hour. Length of boom, over all, 192 feet 6 inches. Coal taken from storage and delivered either to standard railroad cars, via 50-ton hoppers, or to storage space, via inboard leg conveyor. Two such gantries in operation, controlling a length of 715 feet along the bulkhead.

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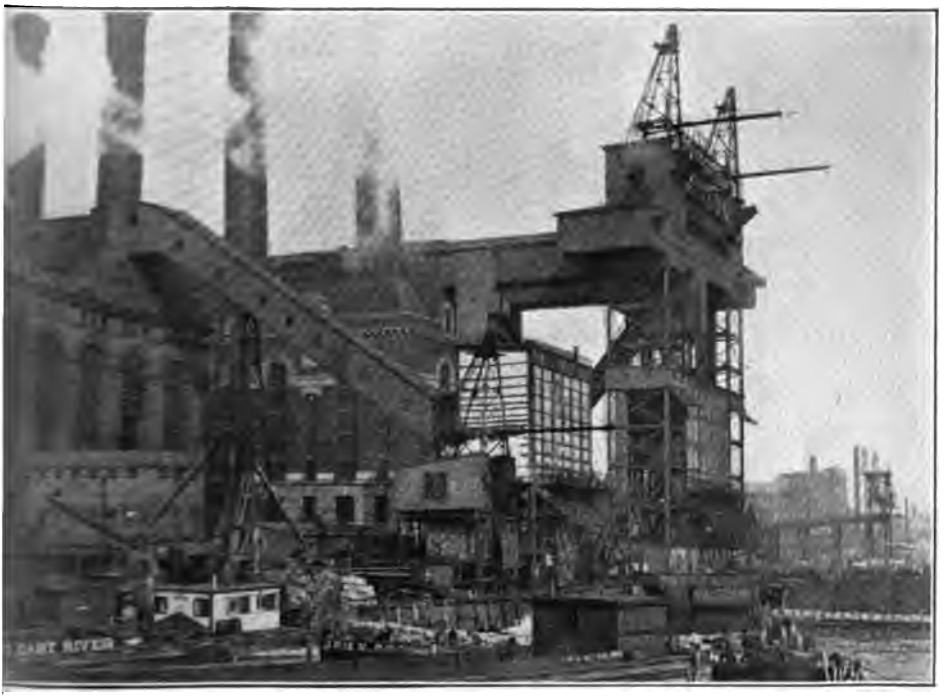

62—Water Side Station No. 1 (on left) and No. 2 (on right). New York Edison Co., foot Thirty-eighth Street, East River. (See Diagrams 61A and 61B.)

Water Side Station No. 1, of the New York Edison Co. Coal capacity, 100 tons per hour. One-ton bucket, [illegible] by a 50-horsepower Stearns engine, delivers to a 30-ton hopper; delivers to a 24-inch crusher driven by a [illegible]-horsepower motor; delivers to weighing hopper; delivers via chute to a 30-inch inclined belt conveyor 35 feet [illegible] driven by a 30-horsepower motor; delivers into a coal hopper; delivers via 2-way chute into two 24-inch bucket [illegible] conveyors running side by side up about 30 feet, then on an incline to top of coal bunkers and along top of coal [illegible] delivering coal into same. From coal bunkers, which have a capacity of 10,000 tons, coal is delivered to [illegible] via chutes. Ashes deliver via chutes with 1¼-yard ash cars pushed by hand to 4-yard ash hopper, delivers [illegible] to 24-inch belt conveyor, 115 feet long, driven by 15-horsepower motor; delivers via chute to bucket ele- [illegible] 100-foot lift, driven by a 30-horsepower motor; delivers via 2-way chute to ash pocket, 900 cubic yards capacity; [illegible] via 6 chutes to scows.

Water Side Station No. 2, of the New York Edison Co. Coal capacity, 100 tons per hour. One and one-half [illegible] bucket, hoisted by a 50-horsepower engine, delivers to a 30-ton hopper; delivers to a 24-inch crusher, driven by [illegible]-horsepower motor; delivers to a weighing hopper; delivers via gate to 3-ton side-dumping coal cable cars [illegible] over the coal bunkers. There are two coaling towers, 239 feet 6 inches high, with hoisting boom 196 feet [illegible] and two coal bunkers with a total capacity of 17,000 tons. The coal is delivered from the bunkers to [illegible] chutes. Ashes deliver via chute to 1¼-yard ash cars drawn by a storage battery locomotive, to two [illegible] hoppers; deliver via gates to two 1½-yard skips, pulled up an incline to a height of 115 feet above deck [illegible] horsepower motors; deliver via 2-way chute to ash pocket, 1,200 cubic yards capacity; deliver via 7 chutes [illegible]

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61.—Cantilever bridge with bucket conveyor on dock. Interborough Rapid Transit Co., Fifty-ninth Street, East River. Two conveyors are installed for handling ashes from power house to boats. Lower line of conveyors travels through tunnel under Twelfth Avenue from power house 200 feet distant. Chutes at end of bridge can be moved to trim barges. (See Diagram 62A.)

62.—Direct coal unloader, crusher, and conveyor, Interborough Rapid Transit Co., Fifty-ninth Street, East River. Movable boom, trolley, and grab bucket. Unloads and stores 900 tons of coal daily. (See Diagram 62A.)

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65—Movable hoisting tower, Brooklyn Heights Railroad Co., Third Avenue Power House. One and one-[illegible] grab bucket; coal passes from receiving hopper through crushers, thence to pivoted bucket car-[illegible] for delivery to boiler-house bins. Locomotive crane lifts from barges to hopper, thence via conveyor [illegible] incline to storage pile.

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Fig. 66.—Direct coal unloader and ash conveyor. Metropolitan Street Railroad Co., Two hundred and second Street, Harlem River.

67.—Typical railroad coal trestle. Baltimore & Ohio Railroad, St. George, Staten Island. (See Diagram 67A.)

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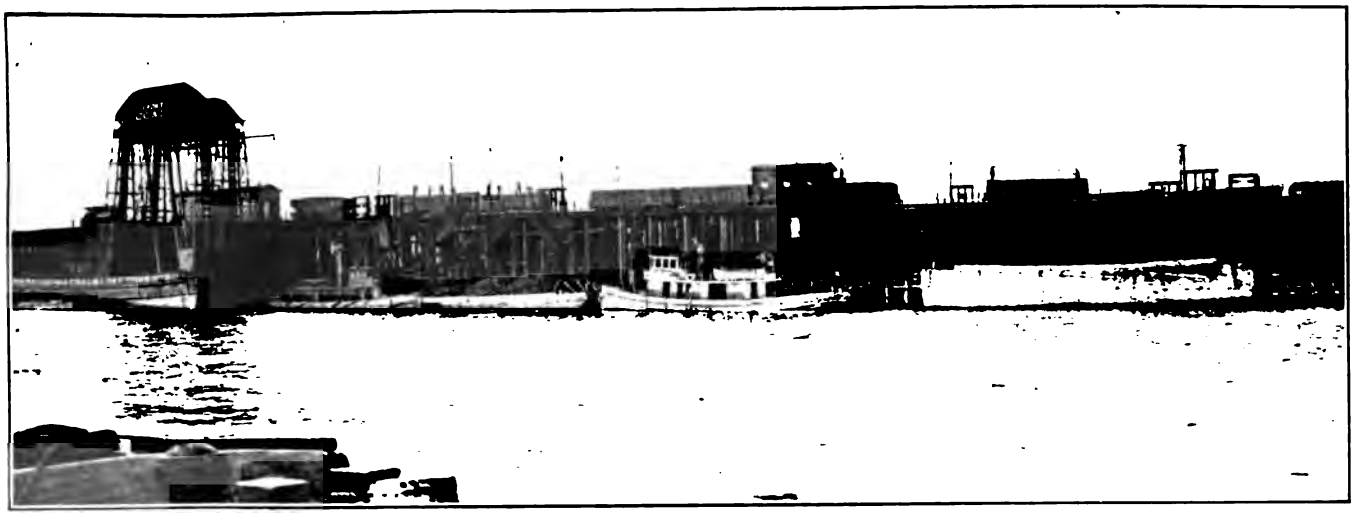

Fig. 67A.—Typical railroad coal pier. Railroad cars brought to top of superstructure by inclined approach; locomotive traction. Cars discharged via hoppers and chutes directly into barges or scows. Note floating coal elevator taking cargo of coal. Central Railroad of New Jersey, Communipaw.

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Fig. 68.—New York Central & Hudson River Railroad Co. Elevator at Fifty-ninth Street, North River. (See Diagram 70A.)

Fig. 69.—Grain elevators. West Shore Railroad, Weehawken, N. J., opposite One hundredth Street, New York City. (See Diagram 70A.)

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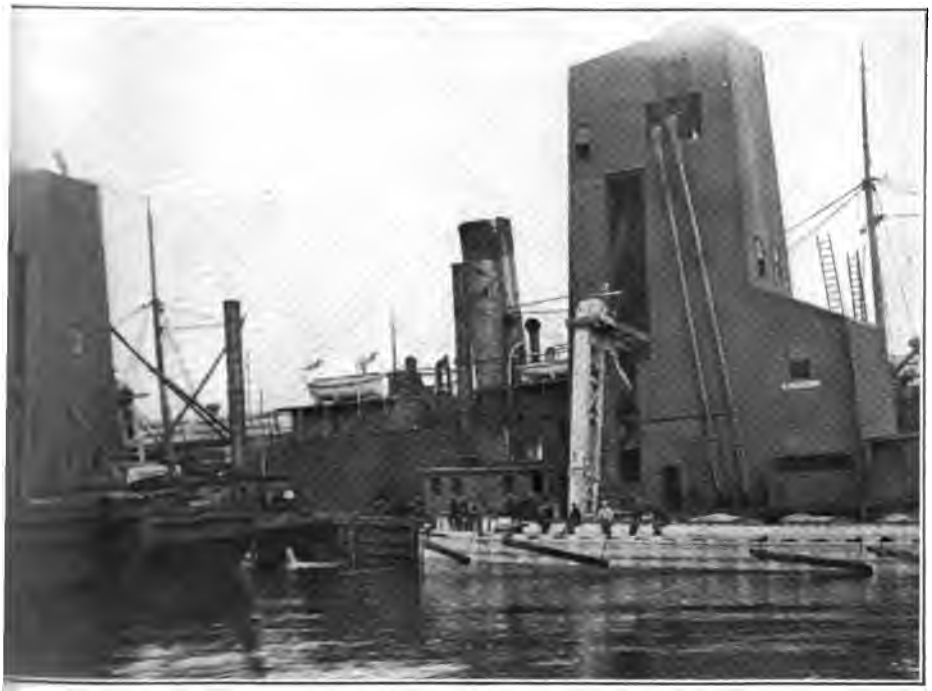

Fig. 70.—Floating grain elevator, Thirty-first Street Pier., South Brooklyn. Loads grain directly from barge to hold of steamer. (See Diagram 71A.)

Fig. 71.—Grain elevator, showing marine leg conveyor. Heckers' Flour Mill, Corlears Hook, East River.

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Fig. 72.—Grain elevators. New York Dock Co., Brooklyn.

73.—Coke loader, Astoria Light & Power Co., Astoria, Long Island. Electric belt conveyor. Car dumps into hopper under track.

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74 —**Barrel** conveyor and elevator. Brooklyn Cooperage Works, Greenpoint. Capacity, 8,000 barrels per day. (See Diagram 75A.)

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Fig. 75.—Barrel hoist, J. B. Kings & Co.'s Plaster Mills.

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Fig. 76.—Barrel elevator and chute. Lehigh Valley Railroad. Flour piers.

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Fig. 77.—Bag chute. New York Dock Co., Brooklyn.

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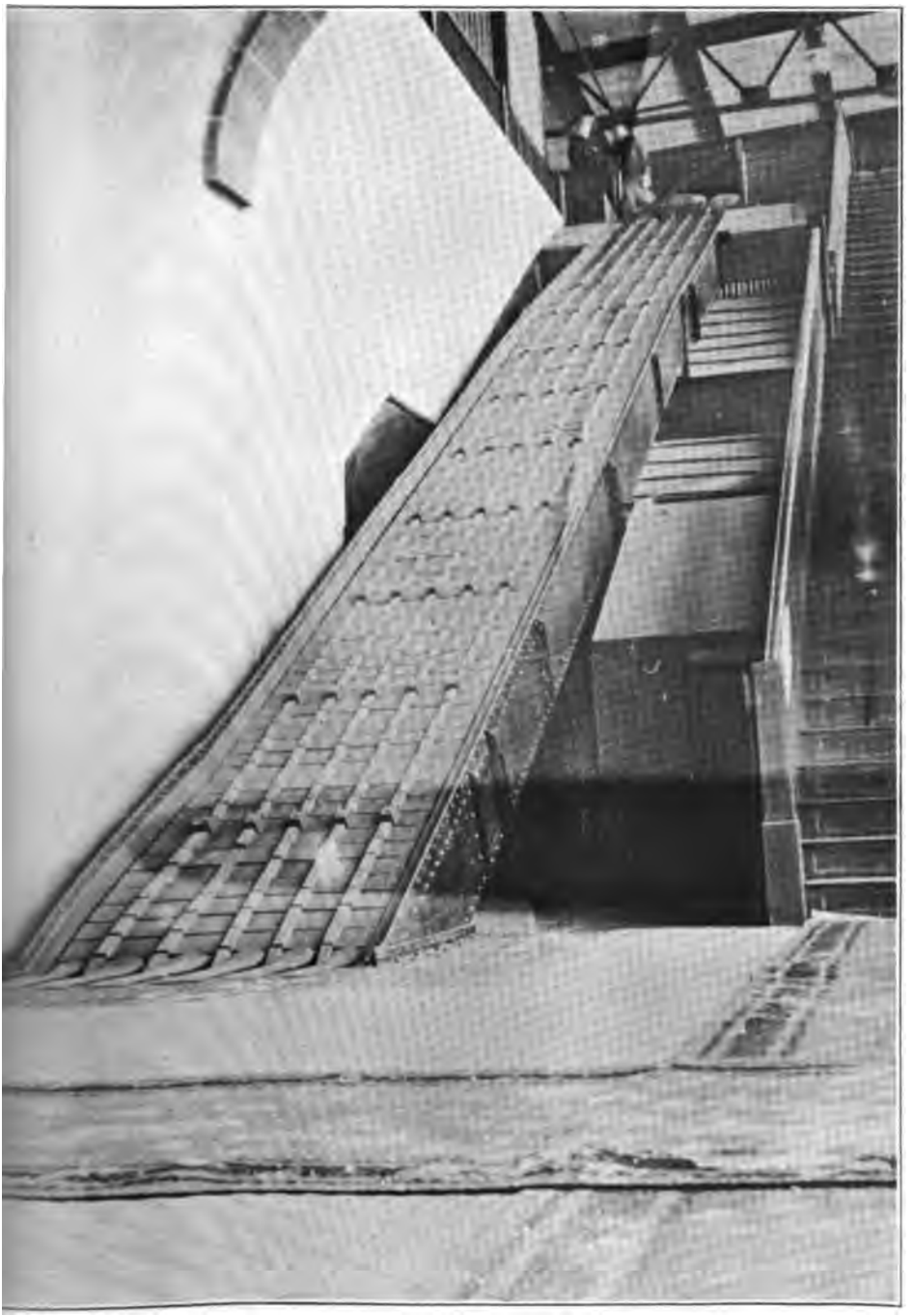

Fig. 78.—Baggage escalator. Chelsea Piers, North River.

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Fig. 79.—Cargo chute. Chelsea Piers, New York City.

Fig. 80.—Electric cargo hoist winch. Fabre Line, Thirty-first Street Pier, South Brooklyn.

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[illegible] 31.—Tiering machine, American Dock & Trust Co., Staten Island. Tiers general merchandise on docks and in warehouses. Electric motor.

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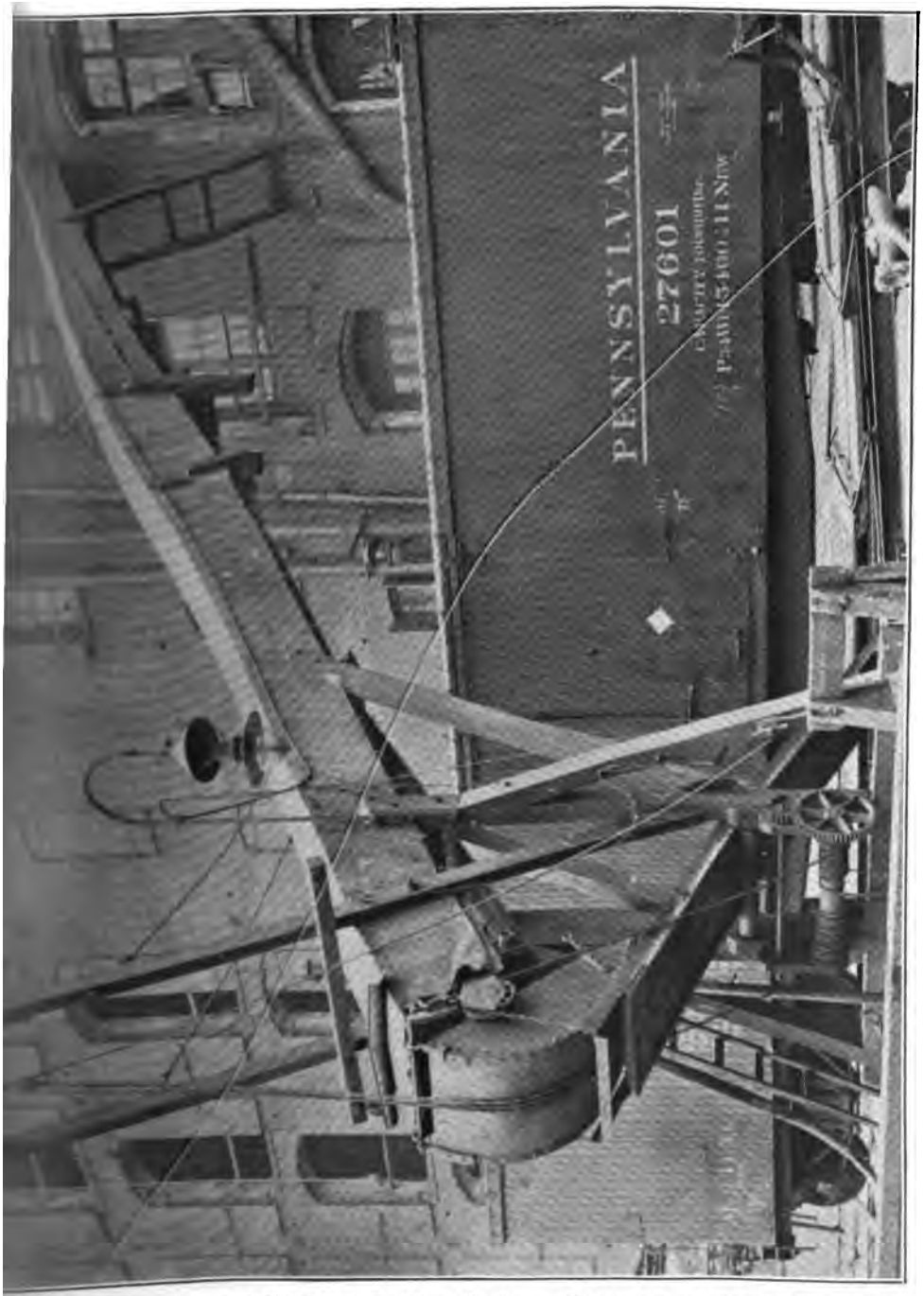

2 —Bag chute. Arbuckle's Coffee Mills, East River, Brooklyn. Discharges bags from upper stories directly into cars or boats. Can be raised or lowered by tackle. (See Diagram 77A.)

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Fig. 83.—Steam derrick. Capacity, 100 tons. Department of docks and ferries, city of New York.

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Fig. 84.—Steam derrick. North River Derrick Co., Hoboken. Capacity, 60 tons.

85.—Typical harbor derricks. For general lifting, wrecking, etc. Merritt, Chapman Wrecking Co., New York City. This type of derrick varies from 10 to 200 tons capacity.

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Fig. 86.—Derrick raising sunken tugboat, North River.

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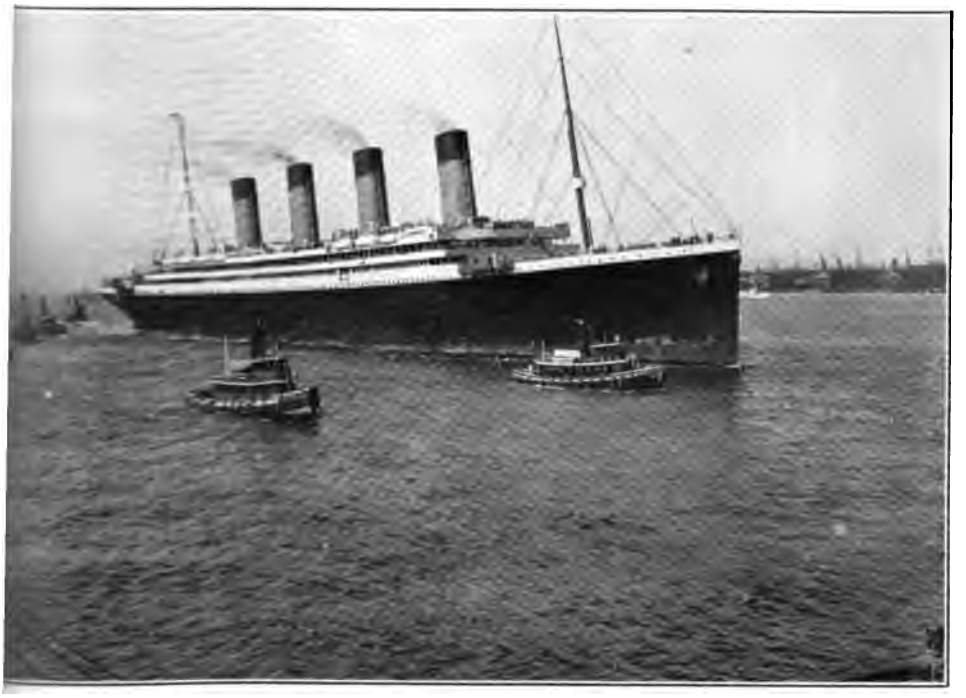

Fig. 87.—Steamship "Olympic" in North River. Typical trans-Atlantic passenger steamship.

Fig. 88.—Steamship "Momus," Metropolitan Line. Typical coastwise steamship.

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Fig. 89.—Typical tramp steamship.

Fig. 90.—Typical Sound steamer. Steamship "Priscilla," Fall River Line.

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—Passenger and freight car transfer steamer "Express." New York, New Haven & Hartford Railroad Co.

Fig. 92.—Typical railroad car transfer float.

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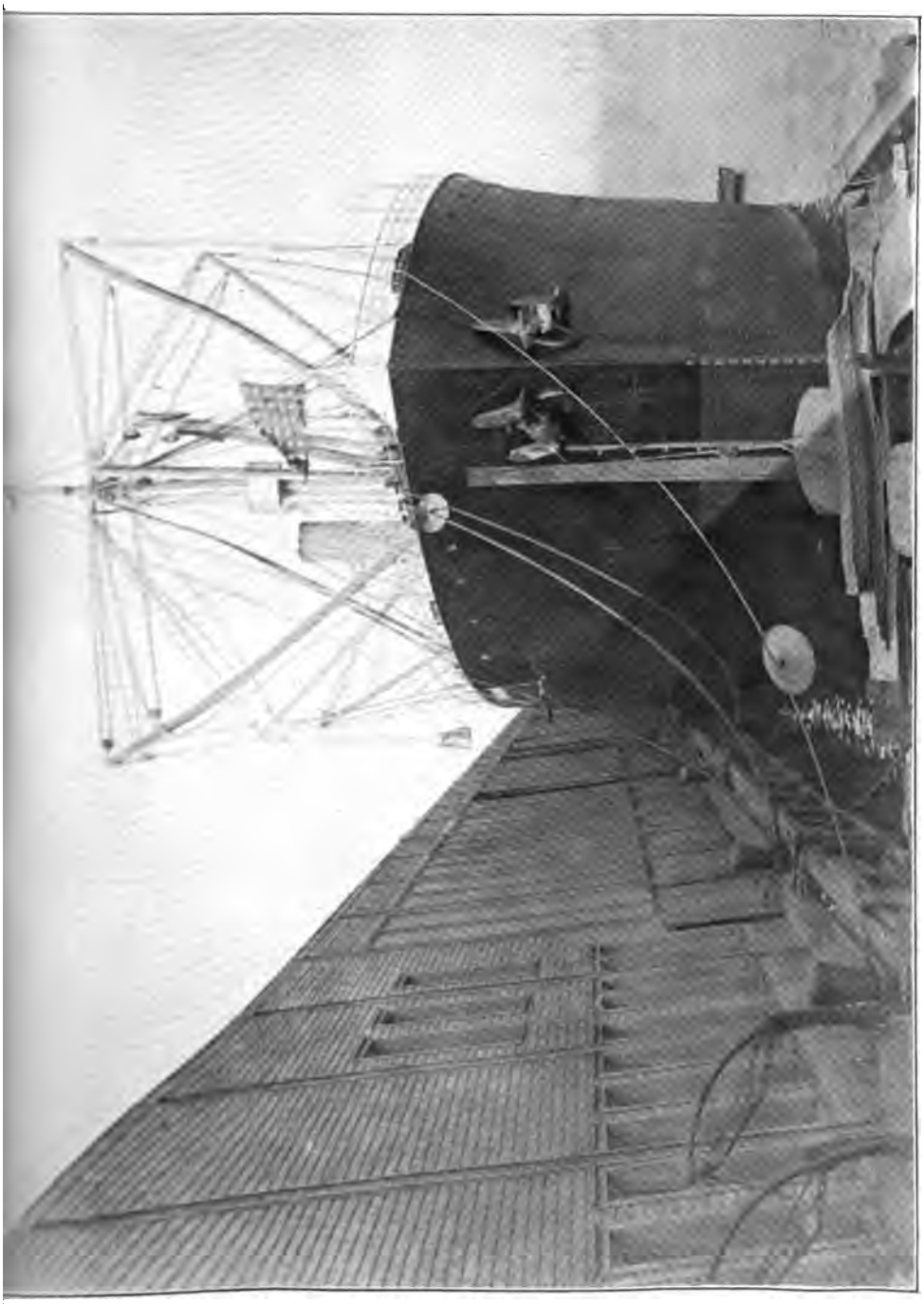

. 93.—Steamship "Texan," Hawaiian-American Line. Note the numerous derrick booms attached to the masts. These vessels are equipped with from 12 to 20 hoisting winches on the upper deck.

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Fig. 94.—Typical ocean-going towboat.

Fig. 95.—Typical steam lighter and towboat.

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Fig. 96.—Typical steam lighter, New York Harbor.

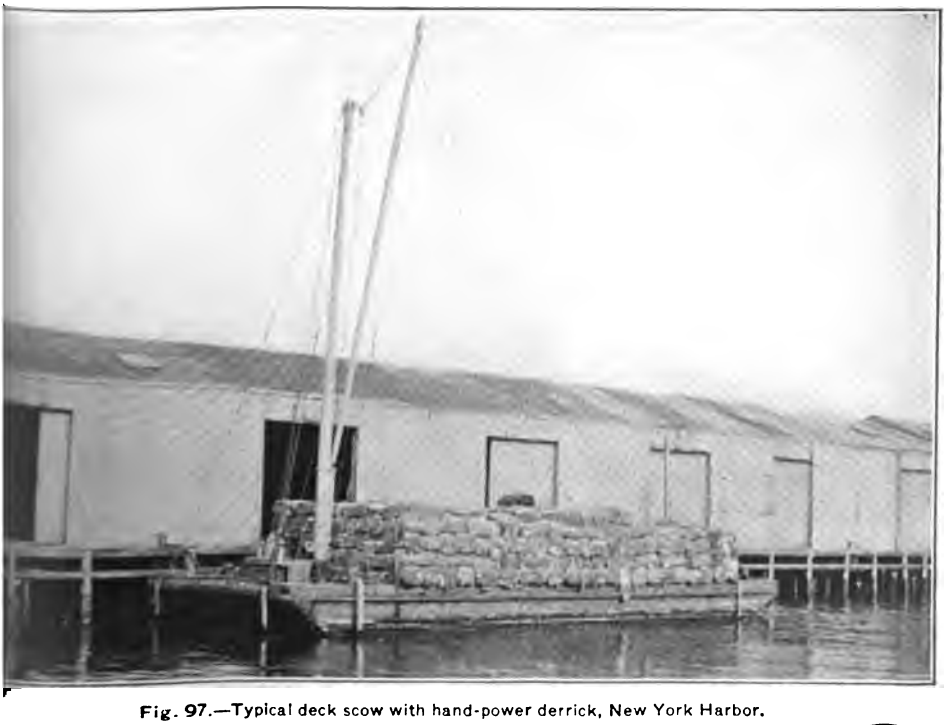

Fig. 97.—Typical deck scow with hand-power derrick, New York Harbor.

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Fig. 98.—Types of towboats, lighters, scows, etc., New York Harbor.

Fig. 99.—Types of covered barges in general use, New York Harbor.

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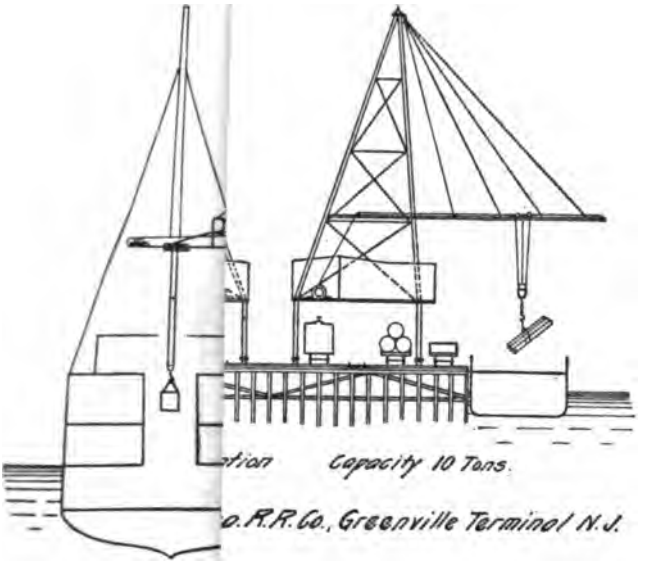
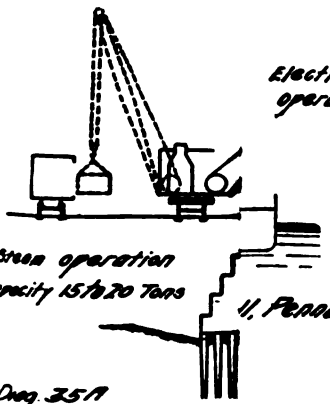


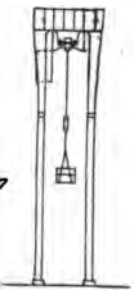
...tion Capacity 10 Tons.

...o. R.R. Co., Greenville Terminal N.J.

Diag. 30A
Fig. 30 Trave...



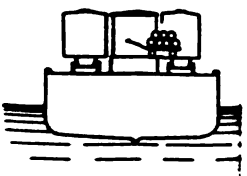
Electric operation

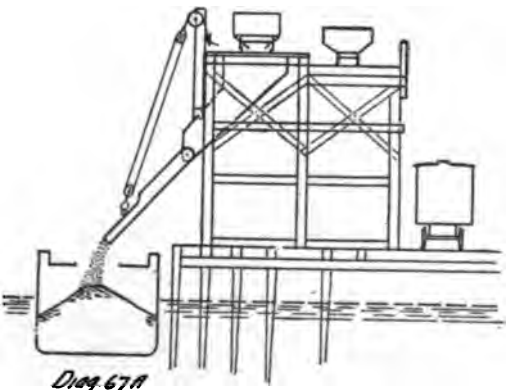


Steam operation
Capacity 15 to 20 Tons

11, Penna. R.R. Yard, Hoboken N.J.

Diag. 35A
Fig. 35 Locomotiv...
D.L.&W.R.R., Pier 4





Diag. 67A
Fig. 67-68 Typical railroad coal piers,
Central R.R. of N.J., Communipaw.

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REPORT OF COL. S. W. ROESSLER, CORPS OF ENGINEERS, OF THE SECOND NEW YORK, N. Y., DISTRICT.

[The letters (*a*), (*b*), (*c*), and (*d*) indicate subheadings as shown by footnotes.]

NEW YORK HARBOR.

30-FOOT CHANNEL BY WAY OF SANDY HOOK.

This is an entrance channel only, extending from deep water in the Atlantic Ocean to deep water at the upper end of the lower bay, a distance by channel of 12 miles. Its nearest approach to shore is at Sandy Hook, where it is one-fourth of a mile distant. The water terminals for ships using this channel are in the Hudson River, East River, and New York Upper Bay.

The channel has fallen into disuse now, except as to comparatively light-draft vessels going to Perth Amboy and lower bay points, and as to sailing vessels and tows. The ships which formerly used this route now follow the shorter, broader, and deeper waterway of Ambrose Channel.

The data concerning water terminals, etc, given in relation to Ambrose Channel, apply to the 30-foot channel, so far as it is used at all.

AMBROSE CHANNEL.

This is strictly an entrance channel to the port of New York. Its nearest approach to shore is 1 mile, and consequently it has no landings along its course. Its water terminals are on the water front of the port of New York, including Brooklyn, N. Y., and Hoboken, Jersey City, and Newark, N. J.

(*a*) The water terminals, so far as they relate to commerce through Ambrose Channel, cover about 26 miles of improved front containing 400± piers, of which probably 150 are devoted wholly or largely to ships using Ambrose Channel.

In the city of New York 230 piers are owned by the city, of which 29 are used for municipal purposes. The others are open to all water carriers upon equal terms, the terms being usually long leases for exclusive use. Several of the larger privately owned piers are leased in the same way. Ships making occasional or irregular trips to New York ("tramp" ships) are, as a rule, consigned to agents who arrange for wharfage. One hundred and twenty-five piers are owned or controlled by railroads in New York and New Jersey.

The rates for wharfage vary widely, from one-fourth cent to 4 cents per ton.

(*b*) About 140 of these piers have direct physical connection with railroads by tracks running to the piers. Practically all of them have indirect railroad connection by means of car floats and lighters.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.

It is understood that a sort of prorating arrangement exists between the railroads of the Eastern Traffic Association for carrying foreign-bound freights to different ports.

In no case is there any prorating or other arrangement to favor railroads at the expense of water carriers. The traffic through Ambrose Channel is not, except to a very slight extent, subject to railroad competition.

(*c*) Each water terminal has connection with highways improved by the several municipalities and they are generally in good condition. Many of the best of them are at times hardly adequate, due more to the rush of traffic than to any defects in the highways themselves.

Plans are under consideration for relief of this congestion. The work will cost many millions of dollars and progress will probably be slow.

(*d*) Water terminals now exist, probably in sufficient number, but no permanent piers have been built sufficient in size to accommodate the largest modern ships now proposed. The best way of providing such accommodation has been and is a subject of consideration by the New York Harbor line board, the cities and States interested, and the several steamship companies.

GOWANUS BAY—BAY RIDGE AND RED HOOK CHANNELS.

These channels extend along the Brooklyn shore, from deep water opposite Ninety-sixth Street to Buttermilk Channel. They are being made 40 feet deep under the river and harbor act of 1899.

(*a*) The water terminals are along the east and northeast side of the channels, the opposite side being open to the bay. There are 15 piers of large size along Bay Ridge Channel. Of these 5 belong to the city, 1 being used for occasional freight, 1 for general use, 1 for a city ferry, and 2 for steamship terminals. One pier belongs to a railroad company and is used as a freight terminal and transfer. Two are used in private business; 7 are owned by the Bush Terminal Co., and are leased to steamship lines and for commercial uses.

Two of the city piers and the 7 Bush piers are large modern structures 1,200 to 1,600 feet long.

The city piers (except the ferry) and the Bush piers are leased. either as entire piers or in berths, largely to regular steamship lines.

Rates for lease are from one-fourth to 4 cents per ton.

There are several small piers in the upper part of Red Hook Channel.

About 4,000 feet of water front on these channels is occupied by the Erie Basin bulkhead, a private structure which prevents construction of piers along the channels, but incloses several important piers.

(*b*) Physical connection between the Bush piers and the Long Island Railroad exists on a private track controlled by the Bush Co.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

The chief connection with railroads is by means of car floats and lighters.

It has not been ascertained that any prorating is in effect between railroads and water carriers.

(*c*) Improved and adequate highways have been built to each terminal.

(*d*) These water terminals are liable to acquire an especial importance in the near future, as they afford the only present available landings for the very large ships now building. At least nine of these piers have sufficient length for such ships, and the requisite depth in the slips could be secured in a short time.

CONEY ISLAND CHANNEL.

This is an entrance channel or a passage between New York Harbor and Jamaica Bay and Coney Island Pier. The original purpose of this channel was to provide a route for dump scows to and from New York, a traffic which requires no terminals.

(*a*) The terminals in use in New York Harbor are very variable. Many of them are open to all water carriers on equal terms, and others are for municipal use only in removal of garbage and waste.

The channel is the only waterway used for carrying passengers to Coney Island and Rockaway Beach.

(*b*) No physical connection exists between these water terminals and railroads. The nature of the traffic requires none.

(*c*) Improved highways exist at the New York and Coney Island terminals. There are no highways at all at Rockaway Point or on Barren Island, Jamaica Bay.

(*d*) There is no present necessity for any improved terminals along or at either end of this waterway.

PORT JEFFERSON HARBOR.

Improvements at this locality comprise an entrance channel protected by two stone jetties.

(*a*) The village of Port Jefferson is situated at the head of the harbor, about 2 miles from the entrance. Here are located all of the important water terminals, but it is unknown to this office what are privately and what publicly owned. They consist of piers, wharves, slips, etc., and are used by the water carriers in the loading and unloading of freight and passengers and for pleasure purposes. Wharfage rates are not at this time available.

(*b*) There are no railroad spurs connecting with water terminals.

(*c*) The highways connecting with water terminals are good and adequate.

(*d*) There is believed to be more or less congestion at the head of this harbor, and a suitable public wharf properly located would prove advantageous to navigation.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

MATTITUCK HARBOR.

At this locality Mattituck Creek is under improvement, protected at the entrance by two stone jetties. When this improvement shall have been completed, the village will have a good channel to Long Island Sound.

(*a*) Properly speaking, there are no water terminals now existing, except very small and insignificant boat landings.

(*b*) There are no railroad spurs connecting with the water front, but the main line of the Long Island Railroad passes through the village of Mattituck about one-fourth of a mile from the head of the creek.

(*c*) The existing highways leading to the water front are adequate.

(*d*) When the project for the improvement of the harbor shall have been carried to the village, a public wharf at the foot of some suitable street should be built.

HUNTINGTON HARBOR.

At this locality the improvements have consisted in the excavation of a channel about 2 miles long through the harbor, in order to procure deep water from Huntington Bay to the village.

(*a*) By far the greatest number of piers and wharves are located on the eastern side of the harbor, near its head. A few others exist at different localities but are of no great commercial importance.

A number of those on the east shore near the head of harbor are built on land owned by the public and leased for nominal sums. They are all of a private character, but no schedule of wharfage rates is adhered to. The power-house wharf is leased from the town of Huntington, it being stipulated in the lease that all vessels shall have free access at reasonable rates. In spite of this regulation, however, it is understood that no uniform scale of prices is adhered to. One steamer pays $100 per year for wharfage and makes all repairs. Other vessels are charged 50 cents per day for unloading privileges, with an additional charge of 25 cents if any material is left on the wharf.

(*b*) The Huntington & Amityville Railroad, a trolley subsidiary of the Long Island Railroad, connects the main line with a freight terminal at the head of the harbor. Freight cars are handled over this spur. There are no other spurs connecting with water terminals. No prorating between water carriers and the railroad for long-distance handling so far as known to this office.

(*c*) Improved and adequate highways have been constructed to the water terminals at the harbor's head.

(*d*) Although water terminals exist, they are not entirely adequate. A tract of public land about 1,000 feet above the present head of harbor could readily be used for the construction of a water terminal if the channel were carried to that point. (See H. Doc. No. 827, 61st Cong., 2d sess., p. 8.)

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

GLENCOVE HARBOR.

The work at this locality consisted in the construction of a breakwater on the east side of Hempstead Harbor, at its entrance, to protect shipping lying at anchor.

(*a*) Such water terminals as exist in the immediate vicinity are small landings of an insignificant character and have little or no commercial importance.

(*b*) There are no railroad spurs connecting with the harbor.

(*c*) The highways are entirely adequate so far as these landings and their use by water carriers are concerned.

(*d*) No water terminals other than those in existence are now needed.

FLUSHING BAY.

The Flushing Bay Channel extends from College Point to the upper Long Island Railroad bridge, traversing the entire length of the bay and a little over 1 mile in Flushing Creek.

(*a*) The water terminals are located at College Point and in the creek along the Flushing front. Two or three such terminals are located at College Point and numerous ones in the creek. All are privately owned. Three of these are open to the public on equal terms. They are used by the water carriers largely for the purpose of delivering freight to the various merchants and so far have proved to be reasonably efficient. Two wharves at College Point are open to all on equal terms, a rate of $2 per day for wharfage being charged for vessels unloading, with no charge for vessels lying light or not unloading. Another wharf at the mouth of the creek charges $5 per day wharfage, or $10 if hoisting derricks and teams are required.

(*b*) The Long Island Railroad passes through both Flushing and College Point, with one spur at the former, connecting with a lumber yard on the water front. There is no prorating between the water carriers and the railroad as to long-distance traffic. College Point is a terminal for a Manhattan ferry line, connecting with trolley line.

(*c*) Generally speaking, improved streets connect with nearly all water terminals, and they have so far proved to be adequate.

(*d*) Although there are at the present time no public wharves in either Flushing Bay or Creek, and but little public land available for such purposes, at the same time the city of New York regards the waterway as a valuable part of its permanent harbor facilities and proposes to adapt the present harbor lines to a regular street system already planned, and which will, when the channel is completed between them, afford not only a good permanent waterway as wide as the conditions warrant, but will also make ample provision for sufficient public lands for right-of-way purposes and use in the construction of water terminals.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

CANARSIE BAY.

The work at Canarsie Bay consists in a channel between the Canarsie Landing and Big Channel in Jamaica Bay, the outer end protected on either side by pile dikes. This work has been abandoned since the formulation of a general plan for Jamaica Bay.

(*a*) There is one landing on the channel—a wharf at its head, at the village of Canarsie. It is adequate, but nothing is known as to wharfage rates.

(*b*) Canarsie Landing is a terminus of one branch of the Brooklyn Rapid Transit Railroad.

(*c*) The highways are improved, and adequate streets exist.

(*d*) No doubt the city of New York will, during the general improvement of Jamaica Bay, provide adequate water terminals for this locality.

HEMPSTEAD HARBOR.

This work is at the head of the harbor, and consists of a channel about 5,000 feet long, extending up to a milldam and causeway at the village of Roslyn.

(*a*) With the exception of Wards Wharf all terminals contiguous to this channel are near its head, at Roslyn village. Two of these are public wharves, one at the head of the channel, the other about 1,500 feet north thereof. A few private wharves are owned by lumber companies, ice factories, etc. They are of the bulkhead rather than the pier type. At South Glenwood, about 8,000 feet north of Roslyn, there is a privately owned wharf where a flat rate of 10 cents per ton is charged either the consignee or consignor. On the west side of the harbor are several piers owned by sand and gravel companies, used in the shipments from their banks.

(*b*) No railroad spurs connect with water terminals.

(*c*) Improved and adequate highways connect with nearly all water terminals.

(*d*) The terminals now existing are believed to be adequate for the present volume of business. The town of North Hempstead owns several acres of land adjacent to the improved channel, where other terminals can be built if needed.

NEWTOWN CREEK.

This is an arm of the East River and has a channel about 4 miles long under improvement.

(*a*) It is lined on either side with wharves throughout almost its entire length. It is considered one of the busiest bodies of water in the country, and the stream with its wharves is subject to very great congestion. Shipments are made to and from all parts of the world. It is too narrow for piers and has but few slips.

Abutting water-front property is largely of private ownership.

The city of New York has recently constructed a wharf at Whale Creek, on the south side of Newtown Creek, with a view to facilitate

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

shipping and the transfer of merchandise. The rates charged are the same as those in force generally by the city. There are no other public wharves.

(*b*) The Long Island Railroad skirts the creek on its north side and has its own wharf just west of the Greenpoint Avenue Bridge. There is no prorating with water carriers as to long-distance hauls.

(*c*) The street systems of Long Island City and Brooklyn are improved in most cases adjacent to Newtown Creek; they are also adequate within themselves, but in many cases do not reach the water front on account of private ownership of the water-front property.

(*d*) It is probable that additional terminals will be needed and it is understood that the city has sufficient space at Whale Creek to construct another wharf, if the use of the one recently constructed shall indicate the necessity for another.

WALLABOUT CHANNEL.

This channel is an arm of East River lying between the Brooklyn Navy Yard and the city of Brooklyn. It is about one-half of a mile in length.

(*a*) The navy yard has certain wharves and slips for its own use. On the Brooklyn side the basin is bulkheaded almost continuously to near its south end. Along this stretch there are located a sugar refinery, the Brooklyn Rapid Transit power house, and the coal elevators of the Brooklyn Union Gas Co. Two piers are owned or leased by the Delaware, Lackawanna & Western Railroad Co., one by the Pennsylvania Railroad Co., and one by the New York Central Railroad Co. The city maintains two piers which are presumably open to public uses in accordance with municipal regulations. Owing to the limited water frontage and the great volume of water-borne traffic, there is great and unavoidable congestion, but not entirely due to inefficiency of the terminals.

(*b*) There is no railway connection by land.

(*c*) The street system of Brooklyn runs to the water frontage in numerous places, and the roadways are in good condition. At the same time there is the same unavoidable congestion of land traffic here as elsewhere along the New York and Brooklyn frontages on the East and Hudson Rivers.

(*d*) As indicated in subparagraph (*a*) preceding, public piers are owned by the city.

BROWNS CREEK.

This work comprises a channel about three-fourths of a mile long, protected at its entrance by two small stone jetties.

(*a*) There are two public wharves at the mouth of the stream and a number of small private landings farther up.

The public wharves are largely used in the handling of fish, oysters, etc., and are probably adequate. Nothing is known to this office as

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

to wharfage rates at the private landings, and it is probable no schedule of rates is maintained.

(*b*) There is no rail connection with any of the wharves on Browns Creek.

(*c*) The highways approaching the water front are very good and adequate for existing commerce.

(*d*) There is a publicly owned tract of land on the west side of the creek, about one-half of a mile from its mouth. It is understood a town wharf is to be there constructed for the village of Sayville. This should afford ample wharfage room for the public.

GREAT SOUTH BAY.

The improvement of Great South Bay comprises a channel through the bay between Fire Island Inlet and Patchogue River and through the latter to its head at Division Street.

(*a*) Patchogue River is fringed by private wharves, landings, slips, etc. There are two wharves, located at the foot of Mulford Street and at the foot of Laurel Street, respectively, that are open to the public, presumably free of cost. One of the private wharves in the village of Patchogue is used by an extensive lumber yard, and the others are used in handling general merchandise. They are reasonably efficient, but the public wharves are small and could not accommodate any very extensive water-borne commerce. The channel in the open bay has a few small landing piers running out from Fire Island Beach. They are usually put out each spring and removed before winter sets in. It is not believed any wharfage schedule of terms is maintained in any case.

(*b*) The Long Island Railroad passes within about 300 feet of the head of navigation and has a spur track running into the lumber yard above mentioned.

No prorating as to long-distance traffic is believed to exist.

(*c*) The village of Patchogue has several streets which connect with the water front, and they are adequate under existing conditions.

(*d*) The public wharves now in existence answer present conditions.

SHEEPSHEAD BAY.

The improvements at this locality contemplate an entrance channel at the eastern end of the bay.

(*a*) There are no public wharves in Sheepshead Bay, but public space available for such purposes exists on three sides of the bay. On the south and west sides, a strip of upland 100 feet wide is owned by the city of New York and legally dedicated to wharf improvements under the city's charter of 1898. This strip of land is now an improved street known as Shore Boulevard. On the north shore between Sheepshead Bay Road and Twenty-seventh Street, the bay is skirted by Emmons Avenue, a city thoroughfare 60 feet wide. There

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

are a number of privately owned wharves and piers open to the public at a uniform rate of $10 per month from June to October, but free for all other months to such vessels as have paid the summer rate. There are about 30 private wharves of all kinds not open to the public.

(*b*) No railroad spurs connect with the water terminals. The Manhattan Beach branch of the Long Island Railroad passes near the head of the bay.

(*c*) Fine streets skirt three sides of the bay and connect with water terminals.

(*d*) The matter of terminals is well covered by city improvements. (See subparagraph (*a*).)

SAG HARBOR.

The harbor is protected by a stone breakwater built out from Conklins Point.

(*a*) There are about five or six wharves or piers located on the south side of the harbor, at the village of Sag Harbor, used in the handling of local commerce. It is not known which of these are publicly owned, if any, or the wharfage rates at private landings.

(*b*) A spur from the Long Island Railroad makes close connection with one of these wharves. No method of prorating between railroad and water carriers is known to this office.

(*c*) Adequate highways, being village streets, connect with the most important water terminals.

(*d*) The necessity for additional water terminals is not known to this office at the present time.

GREENPORT HARBOR.

Improvements at this locality have consisted in an extension of the 9-foot anchorage area by dredging, and its protection by a breakwater.

(*a*) The village of Greenport lies on the west side of the harbor and is well supplied with wharves, piers, and basins, all of which are privately owned. Of these, two, the Union Wharf and the Main Street Wharf, are open to the public under a fixed schedule. The rate is 1 cent per ton per day for less than 10 days, and one-half that amount for 30 days or more. Special rates are made to fishing steamers and vary from $15 during the winter season to $40 in summer. Sailing vessels pay according to tonnage, vessels of 10 tons paying 25 cents per day or $5 per year, while those of 75 to 100 tons pay 50 cents per day or $25 per year. Vessels of intermediate tonnage are charged proportionately. They are largely used in the handling of coal, shipbuilding materials, fish, fertilizers, and farm products.

(*b*) The terminus of the main line of the Long Island Railroad is on the water front, and a spur track is built out on one of the piers. It is not believed that there is any interchange of traffic by prorating.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*c*) The water terminals are connected with the street system of the village, and the roadways are good and believed to be adequate.

(*d*) Although there are numerous water terminals, it is thought a publicly owned wharf would be very advantageous.

JAMAICA BAY.

This is a project entered upon by Congress in cooperation with the city of New York, and its importance depends upon a development as yet hardly begun. The existing landings have been built for such water transportation as has existed. They do not form any part of the new project in which the city proposes to replace them with extensive piers and slips.

(*a*) The present water terminals are insignificant and bear no relation to the project for improvement.

(*b*) They have no physical connection with any railroad and none has been needed. The projected development provides for future railroad service.

(*c*) The existing terminals at Canarsie have sufficient highways; there are no public highways at Barren Island or at Rockaway Point.

(*d*) No water terminals now exist such as the adopted project contemplates. The city's part of the joint plan includes extensive terminals, which will presumably be built when the development reaches such a stage as to need them.

NEW YORK CITY LEGAL WHARFAGE RATES, NOVEMBER, 1908.

Regular wharfage, 2 cents per ton up to 200 tons, and one-half cent per ton for any excess over 200 tons. If vessel occupies an outside berth, and is not working cargo or ballast, one-half of this rate.

Floating grain elevators, half rates.

Floating structures, not otherwise provided for, double rates.

STATE TRAFFIC.

North River barges, market boats and barges, sloops employed upon the rivers and waters of the State, and schooners employed exclusively upon the rivers and waters of the State, as follows:

Under 50 tons	$0.50
50 tons and under 100	.62½
100 tons and under 150	.75
150 tons and under 200	.87½
200 tons and under 250	1.00
250 tons and under 300	1.12½
300 tons and under 350	1.25
350 tons and under 400	1.37½
400 tons and under 450	1.50
450 tons and under 500	1.62½
500 tons and under 550	1.75
550 tons and under 600	1.87½

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

For 600 tons and upward, 12½ cents per 50 tons in excess of last rate.

Canal boats, per diem, 50 cents loaded, 30 cents unloaded. (It is understood that a "canal boat" is a vessel built for navigating the canals of the State, measuring not more than 98 feet in length nor more than 18 feet in width, and whose registered net tonnage does not exceed 150 tons.)

Vessels freighting brick upon the Hudson River, same rate. Scows or barges freighting gravel, broken stone, cement, or sand upon the rivers and waters of the State, 50 cents per day.

Clam and oyster vessels under 200 tons, 1½ cents per ton for an inside berth and 1 cent per ton for an outside berth, but no vessel to pay less than 25 cents per day nor for less than one day.

Lighters and barges engaged in lightering freight in harbor of New York, 1 cent per running foot.

Coal hoists on scows or floats, with coal hopper, etc., $1 per day.

Canal boats (as described above) engaged in transporting coal in the harbor, 50 cents per diem, loaded; 30 cents uloaded; all other unrigged boats transporting coal, 1 cent per running foot, loaded or unloaded.

Twenty-four hours from the time of day or night when a boat reaches a pier or slip constitutes a day for all vessels. A fraction of a day counts as one day, and vessels remaining any fraction over 24 hours pay for another day.

Top wharfage on merchandise, 5 cents per ton. (Accrues after the expiration of 24 hours from time of landing.)

PAYMENT OF WHARFAGE.

Dock masters must collect in cash any and all wharfage daily, except in cases where a credit account has been opened by consent of the commissioner. Payment for wharfage by those having credit accounts must be made direct to the cashier of the department within 10 days after receipt of bill.

REPORT OF COL. WILLIAM T. ROSSELL, CORPS OF ENGINEERS, OF THE THIRD NEW YORK, N. Y., DISTRICT.

[The letters (a), (b), (c), and (d) indicate subheadings as shown by footnotes.]

PASSAIC RIVER, N. J.

(a) There are located on the river from Newark Bay to the head of navigation at Passaic 118 wharves all in fairly good condition, 91 are owned by corporations, 24 by individuals, and 3 by municipalities. They are as follows:

AT NEWARK, N. J., FROM MOUTH OF THE RIVER TO SECOND RIVER.

Public docks open to all at equal terms:

Newark City Dock, just north of Pennsylvania Railroad passenger line.
J. C. Smith & Wallace Co., foot Division Street. This dock is semipublic, occasionally rented out to parties.

The following docks are located in the order named, beginning at the mouth of Newark Bay; they are used exclusively for private interests:

A. Gross & Co., candle works.
Balbach Smelting & Refining Co.
Butterworth-Judson Co., chemicals.
Public Service Corporation of New Jersey, sand and stone dock.
J. H. Ladew, leather.
American Creosoting Co.
American Tanning Co.
The Lister Agriculture Co.
Sherwin-Williams Paint Works.
H. J. Horner & Sons, stone yard.
The Titan Steel Casting Co.
The N. J. Zinc Co.
Ballantine & Co., brewers.
The General Chemical Co.
The Balbach Smelting & Refining Co.
The Newark Express & Transportation Co.
The Wright & Cobb Lighterage Co.
The Newark Lumber Co.
The Public Service Corporation of New Jersey Gas Co.
Cook & Genung, lumber and builder's supplies.
David Ripley & Sons, lumber.
The Van Vliet Malting Co.
Stevens & Condit, freight and passenger dock.
The Public Service of New Jersey Electric Co.
James R. Sayre & Co., brick.
William A. Jones & Son, lumber.
A. H. Clark Ice & Coal Co.
Newark City Garbage Dock, not open for public usage.
The Builders' Supply Co.
P. Ballantine & Sons, brewers.
Abner Reeve & Son, coal.
P. Ballantine & Sons, brewers.
The Public Service of New Jersey Gas Co.
The Newark Plaster Co.
V. J. Hedden & Sons Co., sand and stone.
Cook & Genung Co., building material.

(a) General location and description.

V. J. Hedden & Sons Co., sand and stone.
Delaware, Lackawanna & Western Railroad, unused.
James Crowell, lumber.
Alfred B. Ayres, lumber.
Bailey & Alling, lumber.
The Hedden Construction Co
The Watts-Campbell Co., engines.
The Passaic Machine Works.
The Cawley, Clark & Co., thread works.
Geo. Braun & Co., stone.
The Clark Thread Co.
Albert Wolf Lumber Co.
The Newark Blue Stone Co.
The Standard Oil Co.
Tompkins Bros., coal and masons' materials.
N. J. United Brick & Tile Co.
The Patton Paint Co.
Lehigh Valley Coal Co
H. B. Salmon Co., coal and masons' materials.
The Magnesia Products Co.

FROM MOUTH OF RIVER TO AND INCLUDING HARRISON, N. J.

There are no public docks located in this area. One owned by Walter F. Harris, contractor, located between the Pennsylvania Railroad and Jackson Street, is open to a limited extent for public usage.

The following docks are located in the order named, beginning at the Plank Road Bridge. They are used exclusively for private interests:

The Newark Sanitary Reduction Co.
The Newark Plaster Co.
Snare & Triest, contractors.
Indian Refining Co.
The Newark Meadows Land & Improvement Co.
The Foundation Co., contractors.
Terry & Trench, contractors.
The Trexler Lumber Co.
Crucible Steel Co. of America.
The Otto Coke Co.
Walter F. Harris Co., contractor.
Otis Elevator Co.
Headley & Farmer Co., lumber.
The Monumental Plaster Co.
The Standard Bitulithic Co.
J. J. Spurr & Son, stone works.
E. M. McClave & Sons, lumber.
David Harper, contractor supplies.
Federal Wire Cloth Co., unused.
Brik-Blox Architectural Concrete Co.
Carr & Ball.
Durie & Davidson Stone Works.

EAST NEWARK, N. J.

No public docks in this section. Docks used exclusively for private interests, location beginning at Harrison, N. J., are:

The N. J. Adamant Co.
The Newark Lumber Co.
E. McClave & Son, lumber.
Van Keuren & Son, contractors.
The Pure Oil Co.
The Clark Thread Co.

KEARNY, N. J.

One public dock owned by the town open to all on equal terms.
The following docks are used exclusively for private interests:

Maher & McNichols, sand and stone.
Barber Asphalt Co., unused.
Barbour Flax Spinning Co., Marshall Mill.
The Nairn Linoleum Works.

ABOVE MONTCLAIR AND GREENWOOD LAKE RAILROAD BRIDGE.

There are no docks owned by the public or docks where privileges are extended to all on equal terms.

There are the following docks which are exclusively used for private industries:

AT BELLEVILLE, N. J.

Maas & Waldstein, not used.
J. Hopper & Sons, machine works.
The Fairfield Landscape & Nursery Co.
The Napier Hat Co.
The Thompson Machine Co.
The Eastwood Chemical Co.

AT AVONDALE, N. J.

L. Sonneborn & Sons, oils.
W. Vanderburg, unused.
A. E. Sanford, contractor.
John Hawkins, coal.

RUTHERFORD AND LYNDHURST, N. J.:

J. P. Joralemon, coal and builders' supplies.
The Rutherford Cement Construction Co.
Williams Coal & Grain Co.
E. T. Galloway, coal.

PASSAIC, N. J., AND VICINITY.

The Standard Bleachery Co.
The Hemion Coal & Grain Co.
The Anderson Lumber Co., 2 docks.
F. H. Crane, building material.
M. Birch & Co., building material.
The Passaic Lumber Co.
Campbell, Morrell & Co., building material.
Northern & Aldrich Co.
Passaic Print Works.
The General Chemical Co.
J. L. Prescott Co., enameline works.
The Paterson Parchment Paper Co.

The docks on the Passaic River are generally efficient and handle a large amount of commerce. They are used by ocean steamers, schooners, steamboats, lighters, barges, and scows proportioned as follows: 56 at which lighters land; 66 used by barges; 19 used by schooners; 6 by steamboats; 2 by ocean steamers; 8 by scows only.

The wharves which have mechanical appliances for handling freight are:

With derricks	35
With steam elevator	1
With coal-handling plant	7
With electric hoist	2
With traveling crane	1
With marine elevator	1

(*b*) The following industries and docks have direct physical connection with railroads:

NEWARK, N. J., AND VICINITY—WEST SIDE OF RIVER.

A. Gross & Co., candle works.
Balbach Smelting Co.
Butterworth-Judson Co., chemicals.
The Public Service Corporation of New Jersey.
J. H. Ladew Co., leather.
American Creosoting Co.
American Tanning Co.
Lister Agriculture Chemical Co.
The Sherwin-Williams Co., paints.
H. J. Horner & Sons, stoneyard.
The Titan Steel Casting Co.
The New Jersey Zinc Co.
Ballantine & Co., brewers.
Albert Reeve & Son, coal.
J. C. Smith & Wallace Co.
Delaware, Lackawanna & Western Railroad, unused.
The Newark Blue Stone Co.
The Standard Oil Co.
Tompkins Brothers, mason materials and coal.
New Jersey Unit Brick & Tile Co.
Patton Paint Co.
Lehigh Valley Coal Co.
H. B. Salmon Co., builders' materials.
Magnesia Products Co.

HARRISON, N. J.

Trexler Lumber Co.
Crucible Steel Co. of America.
Otis Elevator Co.
Headley & Farmer, lumber.
Monumental Plaster Co.
The Standard Bitulithic Co.

PASSAIC, N. J.

Northern & Aldrich Co.
Passaic Print Works.
The General Chemical Co.
J. L. Prescott & Co.
The Paterson Parchment Paper Co.

Parties having a mutual contract with water carriers and railroads for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination:

The Newark Express & Lighterage Co.
The Stevens & Condit Co.

These parties have the free lighterage privileges extended by the New York free lighterage district.

(b) Physical connection between water terminals and railroads.

(c) The following docks are approached by improved and adequate public highways:

NEWARK, N. J.

Public Service Corporation of New Jersey.
J. H. Ladew Co., leather.
American Creosoting Co.
American Tanning Co.
The Sherwin-Williams Co., paints.
H. J. Horner & Sons, stoneyard.
The Titan Steel Casting Co.
Ballantine & Co., brewers.
Newark Express & Transportation Co.
Wright & Cobb Lighterage Co.
Newark Lumber Co.
The Public Service Corporation of New Jersey Gas Co.
Cook & Genung.
David Ripley & Sons, builders' supplies.
Van Vliet Malting Co.
Stevens & Condit.
Newark City Docks.
James R. Sayre & Co., builders' supplies.
William A. Jones & Son, builders' supplies.
A. H. Clark Ice & Coal Co.
Builders' Supply Co.
Abner S. Reeve & Son, coal.
V. J. Hedden & Son Co., contractor.
Cook & Genung, builders' supplies.
J. C. Smith & Wallace Co.
James Crowell, lumber.
Alfred B. Ayres, lumber.
Bailey & Alling, lumber.
Hedden Construction Co.
The Cawley, Clark & Co., thread.
George Braun & Co., stone.
Newark Blue Stone Co.
Tompkins Bros., coal and masons' materials.
N. J. Unit Brick & Tile Co.
Patton Paint Co.
H. B. Salmon Co., masons' materials.
Magnesia Products Co.
Lehigh Valley Coal Co.

PLANK ROAD TO AND INCLUDING HARRISON, N. J.

Walter F. Harris, jr., contractor.
Headley-Farmer Co.
Monumental Plaster Co.
E. M. McClave & Sons, lumber.
David Harper, builders' supplies.
Carr & Ball, stoneyard.
Durie & Davidson Stone Works.

EAST NEWARK, N. J.

The New Jersey Adamant Co.
The Newark Lumber Co.
Van Keuren & Sons, contractors.
Clark Thread Co.

KEARNY, N. J.

Town dock.
Maher & McNichols.

(c) Connection with highways.

ABOVE MONTCLAIR & GREENWOOD LAKE RAILROAD BRIDGE, BELLEVILLE, N. J.

J. Hopper & Sons' Machine Works.
The Fairfield Landscape & Nursery Co.

AVONDALE, N. J.

L. Sonneborn & Sons, oils.
John Hawkins.

LYNDHURST AND RUTHERFORD, N. J.

J. P. Joralemon, coal and building material.
Rutherford Cement & Construction Co.
Williams Coal & Grain Co.
E. T. Galloway, coal.

PASSAIC, N. J.

Hemion Coal & Grain Co.
Anderson Lumber Co.
M. Birch & Co., builders' supplies.
Passaic Lumber Co.
Campbell Morrell Co.
J. L. Prescott Co.

(*d*) There is a strong demand for more public docks along the river. As it is, there are only two on the whole stretch that are open to the public generally, one of these in Newark and the other in Kearny. The demand seems to be for one or two in Passaic, one in Rutherford, one in Kearny, one in Harrison, one in Belleville, and at least two in Newark. There are public streets in Passaic, Rutherford, and Belleville leading to the river whose foot could be utilized for public docks. Space is available at several locations in Newark.

HACKENSACK RIVER, N. J.

(*a*) There are the following docks located on the river whose privileges are extended to all on equal terms:

At Snake Hill, penitentiary dock, owned by the State of New Jersey.

Jacob Schmitt's dock, Secaucus, N. J.

River View Amusement Co. Dock, Secaucus, N. J., unavailable at low water.

The following docks and industries are located on the river. They do not extend the privileges of their docks to the public:

VICINITY OF PLANK ROAD BRIDGE.

The Eastern Nodulizing Works.
The pumping station for Morris and Essex Canal.
The Mengel Box Co.

ABOVE D., L. & W. R. R. BRIDGE.

The Public Service Gas Co. of New Jersey.
The American Lumber Co.
The Public Service Electric Co. of New Jersey.

(*a*) General location and description.
(*d*) Necessity for water terminals.

SNAKE HILL, N. J.

The New Jersey Trap Rock Co.

LITTLE FERRY, N. J.

The Mehrhoff Brick Co.
N. Mehrhoff & Co., brick.
L. Fenchtwanger & Co.
The Bergen Paper Co.
The Hackensack Brick Co.
Philip Mehrhoff, brick.
Edward Smultz, brick.

BOGOTA, N. J.

The Continental Paper Co.
The American Paper Co.
The Public Service Corporation of New Jersey.
The Standard Oil Co.
The Felter Coal & Lumber Co.
The Valvoline Oil Co.
The F. R. Long-Broadhurst Co., contractors.

HACKENSACK, N. J.

C. F. Huyler, coal and sand.
J. H. Huyson Coal Co.
The Hackensack Coal & Lumber Co.

These docks are used by excursion boats to a slight extent; lighters, barges, scows, etc., carrying oil, coal, sand, brick, lumber, and general merchandise to a very large extent; schooners to a small extent, and 2,000-ton barges to some extent.

The Eastern Nodulizing Co., the Public Service Gas Co., and Jacob Schmitt's docks are equipped with steam derricks.

The Public Service Co.'s docks at Jersey City are equipped with coal-handling machinery.

(*b*) The following of these docks have physical connection existing between them and railroads serving the same territory:

The Eastern Nodulizing Co.
The American Lumber Co.
The Public Service Electric Co. of New Jersey.
The New Jersey Trap Rock Co.
The Bergen Paper Co.
The Continental Paper Co.
The American Paper Co.
The Felter Coal & Lumber Co.

None of these parties have an existing mutual contract between water carriers and railroads for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) The following docks have approved and adequate highways leading directly to them:

JERSEY CITY, N. J.

The American Lumber Co.

SECAUCUS, N. J.

Jacob Schmitt.
The River View Dock.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

LITTLE FERRY, N. J.

The Mehrhoff Brick Co.
N. Mehrhoff & Co.
The Bergen Paper Co.
The Hackensack Brick Co.

BOGOTA, N. J.

The American Paper Co.
The Felter Coal & Lumber Co.
The F. R. Long-Broadhurst Co.

HACKENSACK, N. J.

C. F. Huyler, coal.
J. H. Huyson Coal Co.
The Hackensack Coal & Lumber Co.

The other docks are approached indirectly through private roads.

(*d*) There is a demand for providing at least two public wharves or terminals; one in the town of Little Ferry, and one in the borough of Hackensack. Space is obtainable for this purpose. Otherwise there seems to be a sufficient number of docks for the present needs of commerce.

ARTHUR KILL, N. Y. AND N. J.

(*a*) There are located on the Arthur Kill, N. Y. and N. J., four docks owned by the public as follows:

At Mariners Harbor, Staten Island, N. Y., foot of Harbor Road, New York City Dock.

At Elizabeth, N. J., two city docks, at Bay Way Avenue, and Recreation Pier at Livingston and Pine Streets.

At Rossville, Staten Island, New York City Dock.

These docks are in good condition and are open to public usage at equal terms to all.

Ten private docks are located on the Arthur Kill and extend their facilities to all on equal terms, in addition to providing for the private needs of the owners.

AT PERTH AMBOY, N. J.

N. Y. & N. J. Steamboat Co.'s Dock, owned by the Pennsylvania Railroad.
Raritan Mercantile Co.
Donovan's Sand & Stone Dock, owned by the Krueger Brewing Co.
Marine Merchants' Terminal Co.
Merritt's Dock.

These docks are in good condition. Donovan's dock is equipped with a steam derrick.

AT CARTARET, N. J.

The Cartaret Dock, owned by Wm. Rodley, general freight.

AT MARINERS HARBOR, STATEN ISLAND.

Brewers Shipyard and Dry Dock.

(*a*) General location and description.
(*d*) Necessity for water terminals.

AT CHELSEA, STATEN ISLAND.

Chelsea Dock, leased by M. T. Meridith.

AT TOTTENVILLE, STATEN ISLAND.

Yettman's Dock, sand and gravel and miscellaneous freight.
New York & New Jersey Steamboat Co.'s Dock, general freight.

In addition there are located along this water way the following parties and industries which have docks and terminal facilities that are not open to the public's use:

AT PERTH AMBOY, N. J.

The Perth Amboy & Tottenville Ferry Co.
The Ely-Norris Safe Co.
The Roessler & Hasslacher Chemical Co.
The Perth Amboy Dry Dock Co.
The Raritan Dry Dock Co.
The Standard Underground Cable Co.
The Atlantic Terra-Cotta Co.
The Public Service Corporation Co. of New Jersey.
The Lehigh Valley Railroad Coal Docks.
The Lehigh Valley Railroad freight and lumber docks.
Hazard-Hillman & Harris Lumber Co.
The United Lead Co.
The American Smelter Co.
The Barber Asphalt Co.

AT MAURER, N. J.

Henry Maurer & Son, fire brick and tile.

AT SEWAREN AND BOYNTON BEACH, N. J.

The Boynton Beach Co., pleasure park, excursion steamers.
The Sewaren Improvement Co., excursions.

AT PORT READING, N. J.

Philadelphia & Reading Railroad Co., coal terminals.
The Port Reading Creosoting Co., Philadelphia & Reading Railroad Co.
The Orford Copper Co.
The Armour Fertilizing Works.

AT CHROME AND BOROUGH OF ROOSEVELT, N. J.

The United States Metals Refining Co.
The Chrome Steel Works.
The Goldschmidt Detinning Works.
S. L. Moore & Sons, unused.
Liebeig's Fertilizer Works—American Agriculture Chemical Co.
Benj. Moore & Co., muresco works.

AT CARTARET, N. J.

The Wheeler Condenser & Engineering Co.
The Warren Chemical Co.
Williams & Clark fertilizers—American Agriculture Chemical Co.

BY RAHWAY RIVER.

Two old docks owned by Montgomery Terminal Co., unused.
American McKenna Co., unused.

AT WARNER, N. J.

The Warner Quintan Asphalt Co.
The Warner Steel Rolling Mills.

AT GRASSELLI, N. J.

The Grasselli Chemical Co.
Mitchell's dock, unused.

AT BAY WAY, N. J.

The Standard Oil Co.
The Waclark Wire Co.
The Bowker Fertilizer Co.—American Agriculture Chemical Co.

AT ELIZABETHPORT, N. J.

Alden S. Swan & Co., oils.
The Galena Signal Oil Co.
The Pennsylvania & Delaware Oil Co.
The New York Lubricating Oil Co.
The Connelly Iron-Sponge & Governor Co.
The Heidritter Lumber Co.
The New Jersey Dry Dock & Transportation Co.
Central Railroad of New Jersey, pipe docks.
Sam. L. Moore & Sons, foundry.
S. M. Clamer, coal.
Staten Island Ferry Co.
Central Railroad of New Jersey, freight docks.
Central Railroad of New Jersey, coal docks.
The Singer Manufacturing Co., sewing machines.

AT PORT RICHMOND, STATEN ISLAND.

The Standard Varnish Works.
J. T. Crittenden & Son, coal.
White & Co., unused.

AT MARINERS HARBOR, STATEN ISLAND.

The New Jersey Dock & Bridge Building Co.
Townsend & Downey Shipyard, now unused except for storage purposes.
Henry Du Bois & Sons, dredging company.
The Marine Construction & Dry Dock Co.
The Hecker-Jones-Jewell Milling Co.
J. A. Snyder & Co., lumber yard.
The Staten Island Shipbuilding Co.
The Mariners Harbor Yacht Club.

AT MILLIKEN, STATEN ISLAND.

Milliken Bros. Co., structural steel.

AT PORT IVORY, STATEN ISLAND.

Proctor & Gamble, soap company.
Elizabethport Staten Island Ferry Co.

AT CHELSEA, STATEN ISLAND.

Mathison & Co.

AT LINOLEUMVILLE, STATEN ISLAND.

The American Linoleum Manufacturing Co.

AT SMOKY POINT, STATEN ISLAND.

The Oakland Chemical Co.

AT ROSSVILLE, STATEN ISLAND.

The Ultra Marine Co., blue works.

AT KREISCHERVILLE, STATEN ISLAND.

Kreischer's Dock, brick works.
Anderson Front Brick Co.
Southern Shipyard Co., unused.
The Atlantic Terra Cotta Co.
Harry Cossey's shipyard.
The Perth Amboy & Tottenville Ferry Co.
Brown's Shipyard Co.

These docks, except in a few cases, are in good condition and efficient. They handle an enormous amount of freight. The large industries have their docks equipped with modern unloading devices. Practically all are equipped with simple derricks.

(b) Of these industries the following have direct railroad connections:

PERTH AMBOY, N. J.

Perth Amboy & Tottenville Ferry Co.
The Standard Underground Cable Co.
The Atlantic Terra Cotta Co.
The Public Service Corporation of New Jersey.
The Lehigh Valley Railroad docks.
The Hazard, Hillman & Harris Lumber Co.
The United Lead Co.
The American Smelter Co.
The Barber Asphalt Co.

MAURER, N. J.

Henry Maurer & Son.

PORT READING, N. J.

The Philadelphia & Reading coal docks.
The Port Reading Creosoting Co.
The Orford Copper Co.
The Armour Fertilizing Works.

CHROME AND ROOSEVELT, N. J.

United States Metal Refining Co.
Chrome Steel Co.
Goldschmidt Detinning Co.
Sam. L. Moore & Sons.
Liebigs Fertilizer Works.
Benj. Moore Co.

CARTERET, N. J.

Wheeler Condenser & Engineering Co.
Warner Chemical Co.
Williams & Clark Fertilizer Works.
American McKenna Process Co., unused.

WARNER, N. J.

The Warner Quintan Asphalt Co.

(b) Physical connection between water terminals and railroads.

GRASSELLI, N. J.

The Grasselli Chemical Co.

ELIZABETHPORT, N. J.

The Bowker Fertilizer Co.
Alden S. Swan & Co., oils.
The Galena Signal Oil Co.
The Pennsylvania & Delaware Oil Co.
The New York Lubricating Oil Co.
The Heidritter Lumber Co.
The New Jersey Dry Dock & Transportation Co.
Sam. L. Moore & Sons.
The Central Railroad of New Jersey docks.
The Singer Manufacturing Co.

MILLIKEN, STATEN ISLAND.

Milliken Bros. Co.

PORT IVORY, STATEN ISLAND.

Procter & Gamble Manufacturing Co.

TOTTENVILLE, STATEN ISLAND.

The Atlantic Terra Cotta Co.
The Perth Amboy & Tottenville Ferry Co.

The following parties have mutual contracts with water carriers and railroads for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination:

PERTH AMBOY, N. J.

The Perth Amboy & Tottenville Ferry Co. through the Staten Island Rapid Transit Railroad.
The Lehigh Valley Railroad docks through their own company.
The American Smelter Co. through lighterage privileges.

PORT READING, N. J.

The Philadelphia & Reading Railroad Co.'s dock through their own company.
The Port Reading Creosoting Co. through the Philadelphia & Reading Railroad and Central Railroad of New Jersey.

CHROME, N. J.

United States Metals Refining Co.
Chrome Steel Works, free lighterage privilege to New York.

CARTERET, N. J.

The Warner Chemical Co.; New York free lighterage privilege.

WARNER, N. J.

The Warner Quintan Asphalt Co.; New York free lighterage privilege.

ELIZABETHPORT, N. J.

Central Railroad of New Jersey docks through own company.
Staten Island Ferry Co. through Staten Island Rapid Transit Co.

MILLIKEN, STATEN ISLAND.

Milliken Bros. Co., lighterage privileges.

PORT IVORY, STATEN ISLAND.

Procter & Gamble Manufacturing Co., lighterage privileges.

(*c*) The following industries have no improved and adequate highways leading directly to their docks; however, practically all of these industries have roads connecting with their plants:

PERTH AMBOY, N. J.

Lehigh Valley Railroad Docks.
Hazard, Hillman & Harris Co.
The United Lead Co.
The American Smelter Co.
The Barber Asphalt Co.

PORT READING, N. J.

Philadelphia & Reading Railroad Docks.
The Port Reading Creosoting Co.
Orford Copper Co.
Armour Fertilizing Co.

CHROME, N. J.

United States Metals Refining Co.
Chrome Steel Works.
Goldschmidt Detinning Works.
Sam. L. Moore & Sons.
Liebig Fertilizer Works.
Benj. Moore Co.

CARTERET, N. J.

Wheeler Condenser & Engineering Co.
Warner Chemical Co.
Williams & Clark Fertilizing Co.

RAHWAY RIVER, N. J.

Montgomery Terminal Co.
American McKenna Process Co.

WARNER, N. J.

The Warner Quintan Asphalt Co.

GRASSELLI, N. J.

The Grasselli Chemical Co.
Mitchell's Dock, unused.

BAY WAY, N. J.

The Standard Oil Co.
The Waclark Wire Co.
The Bowker Fertilizer Co.

(*c*) Connection with highways.

ELIZABETHPORT, N. J.

Alden A. Swan & Co.
Galena Signal Oil Co.
Pennsylvania & Delaware Oil Co.
New York Lubricating Oil Co.
Central Railroad of New Jersey Docks.
The Singer Manufacturing Co.

MARINERS HARBOR, STATEN ISLAND.

Townsend & Downey.
Henry Du Bois & Sons.
The Marine Construction & Dry Dock Co.
The Staten Island Shipbuilding Co.
Mariners Harbor Yacht Club.

MILLIKEN, STATEN ISLAND.

Milliken Bros. Co.

PORT IVORY, STATEN ISLAND.

Procter & Gamble Manufacturing Co.

CHELSEA, STATEN ISLAND.

Mathison & Co.

LINOLEUMVILLE, STATEN ISLAND.

The American Linoleum Manufacturing Co.

TOTTENVILLE, STATEN ISLAND.

The Southern Shipyard Co.
Atlantic Terra Cotta Co.
Brown's Shipyard.

(*d*) The number of terminals seem sufficient for the present needs of commerce. A public city dock located at Perth Amboy would be beneficial.

RAHWAY RIVER, N. J.

(*a*) In all there are 12 docks or wharves on the river from its mouth to the fixed span bridge at Monroe Street, Rahway, of which 5 are hardly used, being in a generally dilapidated condition; 3 in a poor condition and used only to a small extent; thus leaving 4 docks which are used to any considerable extent.

There are 2 public docks and 2 owned by individuals, at which terminal facilities are extended to all on equal terms. All 4 of these are near or in the city of Rahway.

There are no mechanical appliances for handling freight at any of the docks.

The wharves which are not open to the public are those owned by an individual or a corporation, who use them exclusively in handling their own business.

1. Densler's Dock, a private dock now owned by Montgomery Terminal Co., in poor condition, located at north side, about 4,500 feet

(*a*) General location and description.
(*d*) Necessity for water terminals.

from mouth of river and about halfway between bridges of Sound Shore Railroad and Central Railroad of New Jersey.

2. Post's Dock, not in use, being only a few timbers of a former dock, located on south side about 10,500 feet from mouth of river and about 600 feet above Central Railroad of New Jersey bridge.

3. Auchincloss Dock, in a very bad condition, not in use, located on north side about 12,500 feet from mouth of river.

4. Bracher's Dock, not in use, in dilapidated condition, located about 19,500 feet from mouth of river on south side.

5. Bricktown Dock, three in number, originally continuous, now in dilapidated condition, though city dock (middle one of three) is used to a moderate extent. It is a public dock. This whole site is now used principally by the Rahway Yacht Club. These docks are located on the north side, about 20,000 feet from mouth of river.

6. Edgar's Dock, an old, unused dock, located on south side, about 22,600 feet from mouth of river.

7. Potter's Dock, an old dock in poor condition, used to a very small extent. A private dock. It is located on south side, about 23,600 feet from mouth of river.

8. Tice's Dock, an old dock in bad condition, used to a small extent, a private dock located on north side of river and about 24,800 feet from mouth of river.

9. Friese's Dock, private dock, but open to all on equal terms, owned by individual, located on west side near grounds of New Jersey State Reformatory, about 24,900 feet from mouth of river.

10. City Dock of Rahway, a public dock opened to all on equal terms, located on west side, about 25,300 feet from mouth of river and about 250 feet below Milton Avenue Bridge in Rahway.

11. Egyptian Lacquer Co.'s Dock, a corporation dock, not open to public use, located in city of Rahway on west side of river about 26,200 feet from mouth of river, just above and adjoining Milton Avenue Bridge.

12. Chamberlin's Dock, owned by an individual, but open to public on equal terms, located in city of Rahway on east side of river, between Milton Avenue Bridge and Monroe (Main) Street Bridge, about 26,800 feet from mouth of river.

(*b*) None of the wharves connect railroad water lines.

(*c*) There are improved and adequate highways constructed to each terminal.

(*d*) There seems to be an ample number of docks to satisfy the present demands of business.

WOODBRIDGE CREEK, N. J.

(*a*) There are located on Woodbridge Creek the following docks: Boynton docks at the mouth used by C. W. Boynton (Inc.), tile and building material and Boynton-Chalmers Lumber Co. Also used as a landing in the summer time by excursion steamers running to Boynton Beach Park.

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.
(d) Necessity for water terminals.

Two docks lying below highway bridge, belonging to Maurer & Sons, brick and fireproofing.

ABOVE CENTRAL RAILROAD OF NEW JERSEY BRIDGE.

Barber Asphalt Co., road oil refinery dock.
The Vulcan Detinning Co.
The town dock of Woodbridge, N. J., the facilities of which are extended to all on equal terms.
Cutter's clay dock.
M. D. Valentine Bros. Co. Dock, brick and firebrick.
James E. Berry, firebrick and clay.
Salamander's Dock.

The last two named docks were formerly brick docks. They are in poor condition and have been idle for a long time. The other docks are in fair condition and are in use. These docks, with the exception of the town dock, are not open for public usage. Cutter's Dock handles large clay shipments for Anness & Potter Fire Clay Co. and the Federal Terra Cotta Co.

The Vulcan Detinning Co.'s Dock is equipped with a mechanical device for unloading tin scrap. At the other docks all loading and unloading is done by hand.

(*b*) The following industries have connections, by means of sidings, with the Central Railroad of New Jersey:

C. W. Boynton (Inc.).
Boynton Chalmers Lumber Co.
Maurer & Sons.
The Vulcan Detinning Co.
The Barber Asphalt Road Oil Co.

The following industries have connections, by means of sidings, with the Pennsylvania Railroad:

The Federal Terra-Cotta Co.
The M. D. Valentine Bros. Co.
James E. Berry.

The other docks are within short carting distance from the railroads.

As far as could be ascertained there exists no mutual contracts or agreements between the water carriers and the railroads for the interchange of traffic.

(*c*) The town dock and Cutter's Dock are approached by a public highway. The other docks are approached by private roads that have access to public highways.

(*d*) There seems to be a sufficient number of docks for the present demands of business.

RARITAN BAY, N. Y. AND N. J.

(*a*) There are located on Raritan Bay the following docks and piers:

AT SOUTH AMBOY, N. J.

The town dock of South Amboy. This dock is a good dock extending to deep water. It is owned by the borough, and its facilities are extended to all on equal terms.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

Whitehead's sand and clay dock.

The coal terminals of the Pennsylvania Railroad, consisting of three large modern coal piers and two adjoining docks.

Whitehead's Dock is equipped with mechanical appliances for handling sand.

The coal piers of the Pennsylvania Railroad are operated under the name of the Eastern Coal Co. They are the transfer points where practically all the coal carried in by the Pennsylvania Railroad is shipped to points north and northeast. These piers are equipped with the most modern mechanical devices and chutes for coal handling, including two McMyler car dumpers.

AT PERTH AMBOY, N. J.

J. H. Gregory's Dock, wrecking contractor.
The Public Service Gas Co. of New Jersey Dock.
The Ashland Emery & Corundum Dock.

These docks are equipped with simple derricks.

The last two named handle mostly coal. Gregory uses his dock in connection with his business as a wrecker. In addition, there are three small private docks at the junction of the bay with the Arthur Kill. These docks are unavailable, except for small boats of light draft, and are used as pleasure docks.

ON STATEN ISLAND SHORE.

Wards Point Dock, formerly dock landing for park beach, now idle.
Realty Trust Co. of Staten Island Dock.
Hackenster's Dock.
Butler's Dock.
Drum Gould's Dock.
Town dock at Princes Bay, at which facilities are open to all on equal terms.
White Dental Works Co. Dock.
Schwab's Dock.

Of these docks, the dock at Princes Bay, used by the White Dental Co., is the only one that is used to any extent for commercial purposes. The other docks are chiefly used for small boats and launches and for pleasure docks.

ON THE NEW JERSEY SIDE OF RARITAN BAY.

Perrine's sand and clay dock, now idle.
The National Fireproofing Dock at Lorillard.
The Jersey Central Railroad Piers at Atlantic Highlands.

(*b*) The coal docks at South Amboy have direct connection with the Pennsylvania Railroad. Practically all this coal is shipped in barges and is towed by tugboats owned and controlled by the Pennsylvania Railroad.

The New Jersey Central Railroad Piers at Atlantic Highlands are used during the summer season as a transfer point for passengers going to and from New York, from their boats to trains connecting with New Jersey seaside points.

(*b*) Physical connection between water terminals and railroads.

The National Fireproofing Co., at Lorillard, has a siding to the Central Railroad of New Jersey.

The other docks here mentioned have no railroad connection.

(*c*) All the docks are approached by adequate highways.

(*d*) This number of docks seems to be sufficient for the present demands of business.

KEYPORT HARBOR, N. J.

(*a*) There are seven docks located on Keyport Harbor at Keyport. One of these is owned by an individual and six by corporations. They are:

A private dock owned by the T. S. R. Brown estate, located at the foot of Atlantic Street. The privileges of this dock are extended to all on equal terms.

Three docks, owned by the New York & New Jersey Steamboat Co., located at the foot of Broad Street. One of these docks is in bad repair and unserviceable in its present state.

One dock, owned by J. & J. W. Elsworth Co., located at westerly limit of Keyport along Oyster Creek.

One dock, owned by the Keyport Marine Railway Co., located at the foot of Prospect Street.

One dock, owned by the Keyport Steamboat Co., located at the foot of Broad Street.

These last-named docks are not open for the use of the public.

The dock of the Keyport Marine Railway is equipped with simple mechanical appliances for handling the business of the company; the dock of J. & J. W. Elsworth Co. is similarly equipped.

(*b*) These docks have no railroad connections.

(*c*) Each dock is approached by a street in good condition.

(*d*) There seems to be a sufficient number of docks to supply the demands of commerce. A public dock centrally located, for which available ground could be obtained, would be beneficial.

MATAWAN CREEK, N. J.

(*a*) On Matawan Creek there is one public dock owned by the municipality located about 700 feet east of the New York & Long Branch Railroad bridge. This dock is open to all on equal terms, but is in bad repair and practically inaccessible owing to the shoalness of the water and practically unused.

In addition are located the following private docks:

Judson Conover, located 500 feet east of the New York & Long Branch Railroad bridge.

The New Jersey Co., located on the north side of the creek about three-fourths of a mile east of the New York & Long Branch Railroad bridge.

The Alphano Humus Co., located just east of the New Jersey Co.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*b*) The New Jersey Co. and the Alphano Humus Co. are now having a connection made with the New York & Long Branch Railroad Co.

Judson Conover's and the public dock are located only a short distance from the railroad station.

(*c*) Adequate highways approach these terminals.

(*d*) There seems to be a sufficient number of docks to provide for the present demands of commerce.

RARITAN RIVER, N. J.

(*a*) There are three docks in New Brunswick, N. J., owned by the city to which terminal facilities are extended to all on equal terms. They are located along the Delaware & Raritan Canal at the following points: At the foot of Washington, Center, and Bishop Streets. With the exception of the dock at the foot of Bishop Street these docks are in poor condition and practically useless in their present condition. The city of New Brunswick has at present a movement under way toward securing a site for and erecting a public wharf. There is a wharf leased by Conrad Seybolt, contractor, adjoining the Pennsylvania Railroad bridge on the east side available to all on equal terms. This wharf is equipped with a steam derrick.

Martin's Dock, located 2 miles below New Brunswick, may be available for public usage, but is in poor condition and practically unavailable in its present state.

In addition there are located along the river the following parties and industries which have docks and terminal facilities that are not open to the public's use:

AT PERTH AMBOY, N. J., ON THE NORTH SIDE OF THE RIVER.

The Cheesebrough Manufacturing Co., vaseline.
The Raritan Copper Works.
The Pardee Steel & Tile Co.
The National Fireproofing Co.
The Didier March Co., fireproofing.
The Raritan Clay Co.
The Ostrander Fire Brick Co.
The Perth Amboy Fire Brick Co.
The Pfeiffer Sand & Clay Co.

These docks are practically all in good condition and under use at the present time. The dock of the Raritan Copper Works is equipped with traveling cranes and derricks. The majority of the other docks have derrick and simple unloading devices for handling freight.

AT SAYREVILLE, N. J., AND VICINITY.

The Crossman Co., clay and sand.
C. A. Bloomfield, clay and sand.
Sayre & Fisher, two docks below Sayreville and a large water front at Sayreville.
Whitehead Bros., sand and clay, one dock below Sayreville and one at Sayreville.
Holcomb's Dock.
The Edgar Clay Co.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

Of these docks, Whitehead's, below Sayreville, Edgar's, and Holcomb's are in poor condition and practically unavailable. The others are used for the handling of clay, sand, and their products, and are in fair condition.

AT MARTINS CREEK.

Whitehead Bros., sand and clay; two docks.
The New Jersey Clay Products Co.
Widmar's Dock.
Wilcox's Dock.
Martin's Dock.
Martin's Old Quarry Dock.

Whitehead's Dock at Lawrence Creek and the docks of the New Jersey Clay Products Co. are in good condition and are used extensively. The other docks in this vicinity are in poor condition and practically unavailable in their present state.

AT NEW BRUNSWICK, N. J.

The old steamboat dock, owned by the Pennsylvania Railroad, now idle.

Bishop's Dock, located about one-quarter of a mile below the city, is poor and unavailable.

At New Brunswick, N. J., the following industries and parties have docking facilities along the Delaware & Raritan Canal:

The United States Rubber Co.
Janeway & Co., wall paper.
The Norfolk & New Brunswick Hosiery Co.
Conrad Seybolt, contractor.
The Middlesex Transportation Co.
Johnson & Johnson, Red Cross medical supplies.

These parties do a fair amount of water business.

The following parties in New Brunswick, N. J., have water connections along the Delaware & Raritan Canal, but outside of receiving some coal do practically no water business:

The Cronk Manufacturing Co., window sashes.
The Rolfe Building Material Co.
John Collier, coal.
P. P. Runyon, wholesale supplies.
P. M. Walsh, coal and masons' material.
E. Tindell, coal.
The Howell Lumber Co.
The Raritan Coal Co.
W. Schlessinger, coal and wood.
Henderson Iron Co.
The Consolidated Fruit Jar Co.

The docks in New Brunswick have practically no mechanical appliances for handling freight.

(*b*) Practically all the industries located in the Perth Amboy vicinity have railroad spurs or sidings of either the Lehigh Valley Railroad or the Central Railroad of New Jersey connecting with their plants.

All the clay and sand docks have private narrow-gauge railroads connecting with the pits. Those located on the north side of the river run back through the intervening meadow to the upland and

(*b*) Physical connection between water terminals and railroads.

then cross a spur of the Lehigh Valley Railroad, giving them an indirect railroad connection.

The Sayre and Fisher Docks in Sayreville have direct connection with the Raritan River Railroad. The other sand and clay industries on the Sayreville side of the river have indirect connections with the Raritan River Railroad by means of their private narrow-gauge railroads.

All other docks have no direct railroad connections. The Pennsylvania Railroad passes through New Brunswick and is in short carting distance from industries in New Brunswick.

As far as could be ascertained there exists no mutual contracts or agreements between the water carriers and the railroads for interchange of traffic.

(*c*) Improved and adequate highways approach all the docks in the Perth Amboy vicinity with the exception of Perth Amboy Fire Brick Co. and Pfeiffer's sand and clay docks.

In the Sayreville vicinity Crossman's Dock, Whitehead's Dock, and Sayre and Fisher's Docks are approached by adequate roads. The dock of the New Jersey Clay Products Co. and Martin's Dock have roads leading to them.

The steamboat dock at New Brunswick and all docks located on the Delaware & Raritan Canal are in close proximity to and have outlets on public streets.

(*d*) There seems to be a sufficient number of docks for the present needs of commerce. A public dock in serviceable condition located at New Brunswick, at Sayreville, and at Perth Amboy would prove a benefit for these communities.

SOUTH RIVER, N. J.

(*a*) In the upper river, above Bissett's brick dock, there are no wharves owned by the public, nor private wharves with privileges extended to the public. Space can be had for public docks. At Old Bridge there is an old unused bulkhead still intact that was formerly used for docking purposes. This lies along property owned by Charles Layton, John Bissett, and Mrs. Hurtz.

In addition there are:

Smith's upper dock, which lies alongside the plant of the Old Bridge Enamel Brick & Tile Co., used for farm produce and manure.
Brookfield Glass Works dock, used for coal and broken glass.
Rusher's farm dock, now idle.
Smith's lower dock, used for manure and cordwood.
The New York Granite Brick Co. dock, now unused.
Mayer's dock, now unused.
James Bissett's Brick Works dock, used for brick, coal, and miscellaneous.

BETWEEN BISSETT'S BRICK WORKS AND THE RARITAN RIVER RAILROAD BRIDGE.

Kohineep Brick Co.'s dock, unused, in poor condition.
The American Enamel Terra Cotta Co., practically unused.

(*a*) General location and description.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

BETWEEN RARITAN RIVER RAILROAD BRIDGE AND HIGHWAY BRIDGE.

Ed. Furman Brick Works docks.
Wolfson's Coal & Wood Yard.

AT TOWN OF SOUTH RIVER.

Sayre & Fisher Brick Co.
South River Brick Co.
Yates Bros., brick.
Whitehead's dock, brickyard.

Here also is located a public dock, the town dock of South River, located at the foot of the principal street. It is now used as a boat landing for the New York & New Jersey Steamboat Co.

ON THE OLD SOUTH RIVER.

Pettit & Co.'s brickyard.
The Great Eastern Clay Co.

WASHINGTON CANAL.

Sayre & Fisher Co.'s dock, large water front.

Considerable brick and clay are shipped from the docks below the highway bridge. The New York & New Jersey Steamboat Co. carry considerable produce and general merchandise to and from the town dock.

These docks have no mechanical devices for handling freight outside of simple derricks.

(*b*) The following industries have connections with the Pennsylvania Railroad:

The South River Tile & Enamel Works.
The Brookfield Glass Works of Old Bridge.

The following industries have connections with the Raritan River Railroad:

The New York Granite Brick Co.
James Bissett Brick Works.
The American Enamel Terra Cotta Co.
Ed. Furman Brick Works.
Sayre & Fisher Co.
Pettit & Co.
The Great Eastern Clay Co.

The other docks located in South River are in carting distance of the Raritan River Railroad.

As far as could be ascertained there exists no mutual agreements or contracts between the water carriers and the railroads for interchange of traffic.

(*c*) Practically all of these terminals are approached by adequate highways.

(*d*) There seems to be a sufficient number of docks to provide for the present demands of business. On completion of the improvement of the river to Old Bridge a public dock at Old Bridge for the loading of farm commodities, manure, etc., would be beneficial.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

SHOAL HARBOR AND COMPTON CREEK, N. J.

(*a*) There are no public docks.

There are three docks open for public use at equal terms to all. They are located near the junction of Compton Creek with the bay and owned by Nelson & McHenry, Collins Bros., and Anthony Gibson (in bad repair, unusable in present condition). In addition there is the dock of J. H. Smith Co., a manufacturing concern, devoted solely to their business.

These docks, with the exception of Anthony Gibson's dock, are generally efficient. The J. H. Smith Co. have an unloading device for handling fish, and Collins Bros. have a simple derrick for unloading coal.

(*b*) These docks have no railroad connection.

(*c*) Improved and adequate highways are constructed to all terminals.

(*d*) There seems to be ample terminals.

CHEESEQUAKE CREEK, N. J.

(*a*) There are located on Cheesequake Creek the following docks:

The H. C. Perrine's private dock, owned by H. C. Perrine & Son.
Collins's dock, owned by a corporation.
H. C. Perrine's private dock, owned by H. C. Perrine & Son.
Gordon's private dock.
Sagmeyer Enameled Brick Co.'s dock, owned by a corporation.
H. C. Perrine's private dock, owned by H. C. Perrine & Son.

These docks are all private docks and are not open for public use. There are no public docks. These docks are located on both sides of the creek from the mouth to the head.

Collins Bros. propose to build a dock that is to be open to the public, at which terminal facilities will be extended to all on equal terms.

There are no mechanical unloading devices located on these docks.

(*b*) There are no railroad connections to any of these docks.

(*c*) Adequate highways approach each of these docks.

(*d*) The addition of a public dock centrally located, or a dock open for public usage at reasonable terms, would provide for the present needs of commerce along this creek.

SHREWSBURY RIVER, N. J.

MAIN STEM.

(*a*) The following docks and water terminals are located on this section of the Shrewsbury River: At Highlands, N. J., two docks, centrally located and generally efficient. These docks are owned, respectively, by John M. Ryker and the New York & Long Branch

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.
(d) Necessity for water terminals.

Steamboat Co. The facilities of these docks are open to public use on equal terms to all. There are no mechanical devices for handling freight.

(*b*) The docks have no direct railroad connection.

(*c*) The docks are approached by adequate highways.

(*d*) There is no necessity for more docks in this vicinity.

NORTH BRANCH.

(*a*) One at Locust Point, located at the foot of a public highway in the township of Middletown. This dock is owned by an individual, open to all on equal terms.

One at Fairhaven, owned by the borough, located at the foot of the principal street. This dock is open for public use on equal terms to all.

At Oceanic, located at the foot of the principal street of the borough and owned by the borough of Rumson. It is open for public use on equal terms to all. Borden's private dock for landing yachts, owned by M. C. D. Borden estate.

At Red Bank, N. J., the steamboat dock, owned by the Merchants' Steamboat Co., lying at the foot of Wharf Avenue.

Rumpf's dock, a private dock and basin used in yacht building, lying at the foot of Private Street.

Irwin's dock, a private dock used for yacht stowing and yacht building, 200 feet east of the foot of Wharf Avenue.

There are mechanical devices on Irwin's dock for handling freight.

These docks are open to all free, but they are not in the true sense of the word "public docks."

(*b*) There is no physical connection between the docks at Locust Point, Fairhaven, and Oceanic with railroads, the nearest railroad being four, two, and three miles, respectively, distant. The steamboat wharf at Red Bank has a trolley connecting with it; otherwise there are no direct railroad connections with the docks in Red Bank.

(*c*) Adequate highways have been constructed to each of these terminals.

(*d*) There is no need for further docks at Locust Point and at Fairhaven. The dock at Oceanic should be enlarged, there being ample space for such improvement. There is a necessity for a public dock at Red Bank. A public dock is now being provided for by the municipality, which has taken title to property at the foot of Maple Avenue on Washington Street.

SOUTH BRANCH.

(*a*) There are three wharves centrally located at Seabright, two owned by individuals and one by the New York & Long Branch Steamboat Co. These docks are not public docks, but are open to the public on equal terms. In addition there are one or two pieces of property that are bulkheaded and could be used for boat land-

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

ings, but are not open to the public. Simple unloading devices are located on these wharves.

The New York & Long Branch Steamboat Co. have a dock at Pleasure Bay and at Rockwell Avenue, Long Branch. These wharves are not open to all on equal terms.

(*b*) The docks at Seabright have no direct railroad connections, but there are indirect railroad connections with water carriers. The docks at Pleasure Bay and Long Branch have trolley connections but no railroad connections.

(*c*) Improved and adequate highways lead to all of these docks.

(*d*) There is no necessity for further water terminals at Seabright. There seems to be a necessity for a public wharf at Pleasure Bay and at Rockwell Avenue, Long Branch, as they are in a rapidly growing section.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*b*) No direct physical connection exists with railroads. The river transportation company has an arrangement with the Baltimore & Ohio Railroad for interchange of traffic on through freight.

(*c*) A good roadway exists from the terminal.

WHITE HILL, N. J.

(*a*) There are two wharves at this point, one located at foot of Washington Street and the other just above, both timber-crib, earth-filled structures. The former is owned by the borough and the latter by the Bordentown Machine Co. A river transportation company makes daily stops at the borough wharf. The aggregate yearly tonnage amounts to about 2,200 tons, chiefly coal, castings, sand, farm produce, and miscellaneous articles, carried in steamboats, barges, and canal boats. The wharves are adequate for present requirements of commerce. The borough wharf is a public wharf and is open to all water carriers on equal terms on payment of wharfage.

(*b*) The machine company's wharf only has direct physical connection with the Pennsylvania Railroad. The river transportation company has an arrangement with the Baltimore & Ohio Railroad for interchange of traffic on through freight.

(*c*) Good roadways exist from both terminals.

PENNS MANOR, PA.

(*a*) There are two wharves at this point, both located at the ends of wagon roads leading from the main pike. They are timber-crib, earth-filled structures, owned by private parties and used principally by near-by farmers to receive manure and phosphate in the spring for use on their farms. A river transportation company makes daily stops at one of these wharves. The aggregate yearly tonnage amounts to about 3,000 tons, chiefly manure, fertilizer, lumber, coal, and miscellaneous articles. Both are private wharves, but the upper is open to all water carriers on equal terms on payment of wharfage.

(*b*) There is no direct physical connection with railroads from the wharves. The river transportation company has an arrangement with the Baltimore & Ohio Railroad for interchange of traffic on through freight.

(*c*) A good wagon road exists from each wharf.

ROEBLINGS, N. J.

(*a*) There are two wharves at this point, both belonging to John A. Roebling's Sons Co. and used exclusively in the operation of their plant. Both wharves are crib, stone-filled structures. The upper wharf is for freight and the lower for yachts and motor boats. The aggregate yearly tonnage amounts to about 26,800 tons, chiefly castings, oil, sand, gravel, coal, and mill products, carried in steam packets, tank barges, and canal boats.

(*b*) The upper wharf only has direct physical connection with the Pennsylvania Railroad. There is no traffic arrangement with the railroad for interchange of traffic.

(*c*) Good roadways exist from the wharves.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

FLORENCE, N. J.

(*a*) The present terminal facilities consist of one wharf, located at the foot of Broad Street, and a bulkhead frontage at the foot of Front Street. The former is owned by E. M. Locket and the latter by the Florence Iron Works. The wharf is a timber-crib, earth-filled structure, and the bulkhead frontage is of timber, filled in behind with earth. The wharf is used exclusively by a river transportation company and the bulkhead frontage in connection with the operation of the plant of the Florence Iron Works. The aggregate yearly tonnage amounts to about 36,000 tons, carried in sailing vessels, steamboats, barges, and canal boats. Both terminals are private property and not open to other water carriers.

(*b*) There is no direct physical connection with the railroad from the wharf, but the bulkhead frontage has direct connection with the Pennsylvania Railroad.

(*c*) A good roadway exists from each terminal.

TULLYTOWN, PA.

(*a*) There is one wharf at this point, which is located directly in front of the town, a crib, earth-filled structure. The wharf is in a dilapidated condition and has been abandoned for all commercial purposes.

(*b*) There is no direct physical connection with any railroad from the wharf.

(*c*) The roadway leading from the wharf is in a poor condition.

PIPE FOUNDRY ABOVE BRISTOL, PA.

(*a*) There are three wharves at this point, owned by the Standard Cast-Iron Pipe and Foundry Co., and used exclusively in the operation of their plant. The upper wharf is of open pile construction, the middle wharf of pile and timber, and the lower wharf a timber-crib, earth-filled structure. A river transportation company makes daily stops at the middle wharf to receive and discharge freight for the foundry. The aggregate yearly tonnage amounts to about 28,000 tons, chiefly sand, iron fittings, manure, hay, and miscellaneous articles, carried in steamers, schooners, barges, and canal boats. The wharves are private and not open to other water carriers.

(*b*) There is direct physical connection with the Pennsylvania Railroad at the middle wharf, but not at the upper and lower wharves. An arrangement exists for the interchange of traffic with the railroad on through freight.

(*c*) There is a good roadway from each terminal.

BRISTOL, PA.

(*a*) The active water front extends from the canal of the Lehigh Coal & Navigation Co. northward to Market Street, a distance of about one-fourth mile. The terminal facilities within this reach

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

consist of a coal wharf, public pier, steamboat landing, and a wharf at the canal for vessels to moor while awaiting passage through the canal. The aggregate yearly commerce amounts to about 3,000 tons, chiefly coal, sand, gravel, farm produce, and miscellaneous articles, carried in steamers, barges, and canal boats. The public wharf is open to all water carriers on equal terms.

(*b*) There is no direct physical connection with railroads from any of the wharves. A river transportation company has an arrangement with the Baltimore & Ohio Railroad for interchange of traffic on through freight.

(*c*) A good roadway exists from each terminal.

BURLINGTON ISLAND PARK, OPPOSITE BRISTOL, PA.

(*a*) There is one wharf at this point, used by a steamboat company to land passengers at the park during the summer season. No freight is carried. The wharf is private and not open to outside water carriers.

(*b*) No direct physical connection exists with the railroads.

(*c*) A good roadway exists from the wharf to the park.

BURLINGTON, N. J.

(*a*) The water front extends from the Devlin Manufacturing Co.'s wharf, northward to the United States Cast-Iron Pipe & Foundry Co.'s wharf, a distance of about 1½ miles. The terminal facilities within this reach consist of 12 wharves, principally occupied by industrial establishments. The wharves are earth-filled cribs and pile and timber structures. The aggregate yearly tonnage amounts to about 70,000 tons, chiefly coal, lumber, hay, pipe, steel billets, and miscellaneous articles, carried in sailing vessels, steamers, canal boats, and barges. The public wharf at the foot of the main street is open to all water carriers on equal terms, while the others are private wharves and used in connection with industrial establishments, and not open to the public.

(*b*) There is direct physical connection with the Pennsylvania Railroad at the pipe company's wharf, but with none of the other terminals. A river transportation company has an arrangement with the Baltimore & Ohio Railroad for interchange of traffic on through freight.

(*c*) Good roadways exist from all the terminals.

BEVERLY, N. J.

(*a*) The present terminal facilities at this locality are four wharves located between Broad and Cooper Streets, a distance of about one-fifth of a mile, and are crib, earth-filled, and open-pile and timber structures. One wharf is occupied by a river transportation company, one by a coal yard, and the other two have been abandoned for commercial purposes. The aggregate yearly tonnage amounts to about 2,000 tons, chiefly coal, sand, canned goods, farm produce, and

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

miscellaneous articles. The terminals are private and not open to other water carriers.

(*b*) There is no direct physical connection with the railroad from any of the wharves. The river transportation company has an arrangement with the Baltimore & Ohio Railroad for interchange of traffic on through freight.

(*c*) Good roadways exist from each terminal.

EDDINGTON, PA.

(*a*) There is one wharf at this point, which is located on the estate of M. E. Mundy. It is a timber crib, earth-filled structure, and has been abandoned for commercial purposes.

(*b*) There is no direct physical connection with the railroads from the wharf.

(*c*) A good roadway exists from the terminal.

CORNWELLS, PA.

(*a*) There is one wharf at this point, located on the land of the Enterprise Manufacturing Co. The wharf is a concrete, earth-filled structure. A river transportation company makes daily stops to receive and discharge freight for the company's plant. The aggregate tonnage amounts to about 1,500 tons yearly, chiefly sand, coal, fittings, and miscellaneous articles, carried in steamboats, barges, and canal boats. It is a private wharf and not open to other water carriers.

(*b*) There is no direct physical connection with any railroad from the terminal. The river transportation company has an arrangement with the Baltimore & Ohio Railroad for interchange of traffic on through freight.

(*c*) A fair roadway exists from the terminal.

DELANCO, N. J.

(*a*) There is one wharf at this point, located at the foot of Union Avenue. The terminal is owned by the borough, and leased to a transportation company. It is a timber crib, earth-filled structure. The aggregate yearly tonnage amounts to about 100 tons a year, chiefly farm produce and miscellaneous articles, carried on a steamboat, which makes daily stops. The wharf is old and dilapidated, but adequate for present requirements. It is not open to other water carriers.

(*b*) There is no direct physical connection with the railroads. The river transportation company has an arrangement with the Baltimore & Ohio Railroad for interchange of traffic on through freight.

(*c*) A good roadway exists from the terminal.

RIVERTON, N. J.

(*a*) There is one wharf at this point, which is located at the foot of Main Street. It is a timber crib, earth-filled structure. The

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

wharf is owned by a company, and leased to a transportation company, whose steamers make daily stops to receive and discharge freight and passengers. The aggregate yearly tonnage amounts to about 150 tons, chiefly small packages and general merchandise, carried on the steamboats. The terminal is not open to other water carriers. It is adequate for the present requirements of commerce.

(*b*) There is no direct physical connection with any railroad from the wharf. The river transportation company has an arrangement with the Baltimore & Ohio Railroad for interchange of traffic on through freight.

(*c*) A good roadway exists from the terminal.

TORRESDALE, PA.

(*a*) There is one wharf at this point, located at the foot of Fitler Street. It is a timber crib, earth-filled structure. The wharf is a public wharf, and a river transportation company's steamboats make daily stops to receive and discharge freight and passengers. The aggregate yearly tonnage amounts to about 50 tons, chiefly packages and general merchandise, carried on the steamboats. The terminal is open to all water carriers on equal terms.

(*b*) There is no direct physical connection with any railroad from the wharf. The river transportation company has an arrangement with the Baltimore & Ohio Railroad for interchange of traffic on through freight.

(*c*) A fair roadway exists from the terminal.

FISH HOUSE, N. J.

(*a*) There is one wharf at this point, located on the property of the Atlas Cereal Manufacturing Co. It is of pile and timber construction and has been abandoned for commercial purposes. The outer end of the wharf is dilapidated and needs extensive repairs, and is inadequate owing to an insufficient depth of water, which is only 1 foot at low water.

(*b*) There is no direct physical connection with any railroad from the wharf.

(*c*) The roadway leading from the wharf is in poor condition.

DELAIR, N. J.

(*a*) The terminal facilities at this point consist of a bulkhead frontage of timber and piles, filled in behind with earth. It is located on the property of Isaiah Hatch and used in connection with the operation of a brickyard. The aggregate yearly tonnage amounts to about 8,000 tons, chiefly brick, sand, clay, and coal, carried in barges and canal boats. The terminal is a private one, and not open to other water carriers.

(*b*) There is no direct physical connection with any railroad from the wharf and no arrangements for interchange of traffic with the railroads.

(*c*) The roadway leading from the terminal is in fair condition.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

CAMDEN, N. J.

(*a*) The water front extends from the New York Shipbuilding Co.'s yard northward to Thirty-first Street, a distance of about seven miles. The terminal facilities within this distance consist of 52 wharves, mostly of timber crib, earth-filled, or open pile and timber construction. All terminals, except one belonging to the city, are owned and occupied by shipyards, industrial establishments, coal and lumber yards, and the railroads. The aggregate yearly tonnage, exclusive of freight carried on by railroad on car floats, amounts to about 400,000 tons, chiefly coal, sand, lumber, petroleum, licorice root, chalk, and miscellaneous articles, carried in steamers, sailing vessels, barges, car floats, canal boats, and lighters. The privately owned terminals operated in connection with industrial plants are not open to other water carriers. Wharfage is furnished free by the railroads for freight carried over their roads. At the municipal pier, foot of Cooper Street, and at most of the private lumber and coal yards wharfage can be obtained by other water carriers on equal terms.

(*b*) There is direct physical connection both with the Pennsylvania Railroad and Philadelphia & Reading Railroad from the wharves operated in connection with coal and lumber yards and the most important shipyards and industrial establishments. The terminal owners report that there is no arrangement for interchange of traffic with the railroads.

(*c*) There are generally good roads leading from all the terminals.

PHILADELPHIA, PA.

(*a*) The active water front extends from Allegheny Avenue on the north to Point House Wharf on the south, a distance of 37,360 feet, or more than 7 miles. Of this frontage the several railroad companies own 56 per cent; private owners, 34½ per cent; and the municipality, 9½ per cent. There are 162 different terminals in the limits of this frontage, of which 16 are owned by the city. Above and below these points are about 12 miles of unoccupied land available for further terminals and industrial establishments. The existing terminals are mostly of timber crib, earth-filled, or open pile and timber construction, excepting those built of recent years, particularly by the railroads and the municipality, which have pile and concrete substructure with steel superstructure, and are equipped with up-to-date facilities for rapid loading and unloading of freight. The terminals are occupied by railroad, steamship, transportation, and lighterage companies, and industrial establishments. The commerce passing over these terminals is very extensive and steadily increasing. In 1911 it aggregated about 22,000,000 short tons, consisting of imports, exports, and coastwise and domestic commerce. Of this amount about 10,000,000 short tons was carried by steamboats, lighters, canal boats, and car floats, and delivered to points above and below Philadelphia, or within the harbor limits of the port. The principal commodities are coal, ores, lumber, logwood, petroleum,

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

goatskins, sugar, wheat, corn, oats, manufactured iron, general merchandise, and miscellaneous. This commerce is carried in all kinds of vessels up to a draft of 29 feet. The privately owned piers of the industrial establishments and of the regular line steamship companies are used exclusively for their own business. The terminals owned by the municipality are leased. At the largest of these terminals the space on the piers is divided into panels, and these panels are usually rented to small transportation and steamboat companies, often several of these companies occupying the same terminal. The railroads provide free wharfage for freight which is carried over their lines. Other terminals are open to all water carriers on equal terms. The charges for vessels loading or discharging cargo are from 1 to 3 cents per ton, and for stopping or lying at the pier from 25 cents to $1 per day, according to size of the vessel.

(*b*) The terminals owned by the railroads have direct physical connection from the terminals with their own roads, while a few of the steamship companies, shipyards, and transportation companies have connection with a belt line which partly parallels the water front. Traffic arrangements exist for interchange of traffic on through freight between the railroads, steamship companies, and river transportation lines.

(*c*) There are generally good roads leading from all the terminals.

The city of Philadelphia, realizing the importance of caring for its rapidly increasing commerce, and to provide for vessels coming to the port, outside the regular lines, have commenced the construction of a system of terminals capable of accommodating vessels of any draft. One terminal has already been completed, another is in course of construction, and funds are provided for a third. It is understood that these terminals will be open to all water carriers on equal terms.

GLOUCESTER, N. J.

(*a*) The active water front extends from the foot of Ferry Street northward to the foundry wharf, a distance of about three-fourths of a mile. Within this distance there are 11 wharves, three of which have been abandoned for commercial purposes and seven occupied by coal yards and industrial establishments. These are timber-crib, earth-filled structures. The aggregate yearly tonnage amounts to about 32,000 tons, chiefly sand, bricks, and coal, carried in barges and canal boats. The terminals occupied by industrial establishments are not open to other water carriers, but a company maintains a wharf at the foot of Ferry Street, which is open to all water carriers on equal terms, the charges being from 1 to 2 cents per ton on freight unloaded on the wharf.

(*b*) There is no direct physical connection by railroad with any of the terminals. No arrangements exist with any of the railroads for interchange of traffic.

(*c*) There are generally good roads leading from all the terminals.

WASHINGTON PARK, N. J.

(*a*) There is one wharf at this point, located on the property of the estate of W. J. Thompson. It is of open pile and timber construction

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

and is used principally during the summer season to receive and discharge passengers for the park. The aggregate yearly tonnage amounts to about 2,000 tons, which is carried in canal boats and barges. It is not open to other water carriers.

(*b*) There is no direct physical connection with any railroad from the terminal and no arrangement with the railroad for interchange of traffic.

(*c*) There is a good roadway leading from the terminal.

RED BANK, N. J.

(*a*) There is one wharf at this point, located on the grounds owned by the Sanitarium Association. It is of concrete, earth filled. The terminal is used only during the summer season as a recreation pier for sick children brought from Philadelphia on two steamboats. There is no commerce passing over the pier. The wharf is not open to other water carriers.

(*b*) There is no direct physical connection with any railroad from the terminal.

(*c*) The roadway leading from the terminal is in good condition.

BILLINGSPORT, N. J.

(*a*) The active water front extends from the upper entrance of Lincoln Park northward to the foot of Delaware Street, a distance of about one-fifth of a mile. There are three wharves within this area, but only one is used, the other two being idle and practically abandoned for commercial purposes. The wharf at the foot of Delaware Street is a timber-crib, earth-filled structure. A river transportation company's steamboats make daily stops at this terminal to receive and discharge freight and passengers. The aggregate yearly tonnage amounts to about 200 tons, chiefly general merchandise and small packages, carried on the steamboats. The wharf is open to all water carriers on equal terms.

(*b*) There is no direct physical connection with any railroad from the terminal, and no arrangement exists for interchange of traffic.

(*c*) There is a good roadway leading from the terminal.

THOMPSONS POINT, N. J.

(*a*) There are two wharves at this point, including a bulkhead frontage, located on the property of the E. I. du Pont de Nemours Powder Co. The aggregate yearly tonnage is about 50,000 tons, chiefly chemicals, petroleum, explosives, sand, crushed stone, and machinery, carried in steamers, steamboat packets, barges, car floats, and canal boats. One river transportation company's steamer makes daily stops to receive and discharge freight. The wharves are not open to other water carriers.

(*b*) There is direct physical connection with the Pennsylvania Railroad and the Philadelphia and Reading Railway. The river transportation company has an agreement with the railroads for an interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

ESSINGTON, PA.

(*a*) There are three wharves at this point, two of them occupied by yacht clubs and the other by a boat-building establishment. They are timber and stone earth-filled structures. There is no commerce passing over the piers, which are not open to water carriers in general.

(*b*) There is no physical connection with any railroads from the terminals.

(*c*) There are good roadways leading from all the terminals.

EDDYSTONE, PA.

(*a*) There is one wharf at this point, located on the property of the Eddystone Manufacturing Co. It is a timber-crib, earth-filled structure. The aggregate yearly tonnage amounts to about 55,000 tons, chiefly coal, oil, sand, and miscellaneous articles, carried in packets, canal boats, and barges. A river transportation company's steamers make daily stops to receive and discharge freight. The wharf is not open to other water carriers.

(*b*) There is direct physical connection with the Pennsylvania Railroad and Philadelphia and Reading Railway from the wharf. The river transportation company has an arrangement with the railroads for interchange of traffic on through freight.

(*c*) There is a fair roadway leading from the terminal.

CHESTER, PA.

(*a*) The active water front extends from the Standard Oil Co.'s piers northward to Madison Street, a distance of about 3 miles. There are 22 wharves within this distance. The terminals are mostly of timber-crib, earth-filled construction, and are largely occupied by industrial establishments. The aggregate yearly tonnage is about 414,400 tons, chiefly logwood, plaster, steel castings, magnesite, coal, sand, and lumber, carried in steamers, packets, canal boats, and barges. The privately owned terminals operated in connection with industrial establishments are not open to all water carriers, but there are several piers where wharfage is open to all on equal terms.

(*b*) There is direct physical connection with the railroad to most of the important terminals. The river transportation companies whose steamers make daily stops at most of the terminals have an agreement with the railroads for the interchange of traffic on through freight.

(*c*) There are generally good roadways leading from all the terminals.

MARCUS HOOK, PA.

(*a*) The active water front extends the entire length of the borough, a distance of about 1½ miles. There are seven piers within this area, five of which are devoted to the oil business. The terminals are mostly of crib, earth-filled, or open pile and timber construction.

(*a*) General location and description
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

A river transportation company's steamers make stops at the oil piers to receive and discharge freight for the plants. The aggregate yearly tonnage amounts to about 367,209 tons, chiefly petroleum and its products, coal, farm produce, and miscellaneous articles, carried in tank steamers, oil barges, packets, canal boats, and barges. The privately owned terminals operated in connection with industrial establishments are not open to other water carriers, but there is a public pier where wharfage is open to all water carriers on equal terms. The terminals are adequate for present requirements.

(*b*) There is direct physical connection with the railroads to all the oil wharves, but none to the public pier. The river transportation company has an agreement with the railroads for interchange of traffic on through freight.

(*c*) There are generally good roads leading from all the terminals.

BELLEVUE, DEL.

(*a*) There is one pile and crib, earth-filled wharf at this point, located on the property of the Breakwater Co. The wharf is used exclusively by the company in connection with the operation of a quarry. The aggregate yearly tonnage amounts to about 120,000 tons, chiefly stone and coal, carried in canal boats and barges. It is not open to other water carriers and is adequate for present requirements.

(*b*) There is no direct physical connection with any railroad from the wharf and no arrangement exists for interchange of traffic.

(*c*) There is no roadway leading from the wharf, which can be reached only by a private narrow-gauge railroad or by a footpath.

GORDON HEIGHTS, DEL.

(*a*) There is one wharf at this point, located on the property of a fertilizer plant. It is of pile and timber construction. The wharf is in a dilapidated condition and has been abandoned for all commercial purposes.

(*b*) There is no direct physical connection with the railroad from the wharf.

(*c*) There is no roadway leading from the terminal, and its only approach is by a footpath.

PENNS GROVE, N. J.

(*a*) The active water front extends about three-fourths of a mile, within which limit there are four wharves. They are of crib, earth-filled, or open pile and timber construction. One pier is occupied by a river transportation company, one by a coal yard, and the other two by private parties, who use them for the purpose of shipping canned goods and farm produce during the season. The aggregate yearly tonnage amounts to about 11,300 tons, chiefly coal, farm produce, canned goods, fertilizer, and miscellaneous articles, carried in steamships, barges, canal boats, and gasoline boats. The terminals

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

are all privately owned, but open to all water carriers on equal terms, and are adequate for present requirements.

(*b*) There is no direct physical connection with the railroad from the terminals. The river transportation company has an arrangement with the railroads for an interchange of traffic on through freight.

(*c*) There are good roadways leading from all the terminals.

PIGEON POINT, DEL.

(*a*) There is one wharf at this point, located on the property of the Philadelphia & Reading Railway Company. It is of open pile and timber construction. The pier is occupied exclusively by the railroad company and is used principally by them in transferring car floats to points on the river. It is also used by vessels having cargoes consigned to Wilmington, Del., which, on account of excessive draft, can not navigate the Christiana River. These boats are anchored in the Delaware River and their cargoes lightered to the terminal and then transferred to Wilmington by rail over the tracks of the company. The aggregate yearly tonnage is estimated at about 350,000 tons, chiefly coal, feldspar, lumber, and chemicals, carried in car floats, lighters, steamers, barges, and canal boats. There is no charge for wharfage, and the terminal is open to all water carriers on equal terms, provided the freight is carried over the company's railroad. The terminal is adequate for present requirements.

(*b*) There is direct physical connection with the company's railroad from the terminal, but no information is at hand relative to traffic arrangements on through freight.

(*c*) There is no roadway leading from the terminal, and it can be approached only by railroad or by a footpath.

PENNSVILLE, N. J.

(*a*) There are two wharves at this point, one located at the foot of Main Street and the other at the foot of Pittfield Street. They are of timber-crib, earth-filled construction. The former is used by a river transportation company and the latter by a shipping company. The aggregate yearly tonnage amounts to about 7,500 tons, consisting of canned goods, farm produce, fertilizer, coal, and miscellaneous articles. The wharves are privately owned, but open to all water carriers on equal terms, and are adequate for present requirements.

(*b*) There is no direct physical connection with any railroad from the terminals, and no arrangement with the railroads for interchange of traffic on through freight.

(*c*) There are good roadways leading from both terminals.

NEW CASTLE, DEL.

(*a*) The water front extends from the Baldt Steel Casting Co.'s wharf southward to the brickyard wharf, a distance of about 2 miles. Within this area there are 11 piers, 9 of which are practically in ruins and abandoned for commercial purposes. They are of crib,

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

earth filled, and open pile and timber construction. The aggregate yearly tonnage amounts to about 7,500 tons, chiefly sand, coal, and fish, carried in sailing vessels, canal boats, and barges. The Baldt Steel Co.'s wharf is not open to the public, but there is a public wharf at the foot of Delaware Street which is open to all water carriers on equal terms. The wharves are adequate for present requirements.

(*b*) There is no direct physical connection with the railroads from any of the terminals, and no arrangements with the railroads for interchange of traffic on through freight.

(*c*) There are good roadways leading from both terminals.

CARNEYS POINT, N. J.

(*a*) There are two wharves at this point, located on the property of the E. I. du Pont de Nemours Powder Co., and used in the operation of their plant. They are pile and timber structures. The aggregate yearly tonnage amounts to about 80,000 tons, chiefly sand, chemicals, explosives, and miscellaneous articles, carried in packets, car floats, canal boats, and barges. A river transportation company's packets make daily stops to receive and discharge freight. The wharves are privately owned and not open to outside water carriers and are adequate for present requirements.

(*b*) There is direct physical connection with the Pennsylvania Railroad and the Philadelphia & Reading Railway to both terminals. The river transportation company has an agreement with the railroads for an interchange of traffic on through freight.

(*c*) There are good roadways leading from both terminals.

DELAWARE CITY, DEL.

(*a*) The active water front extends from the wharf at Fort Du Pont northward to Clinton Street, a distance of about one-fifth of a mile. Within this area are four wharves, which are timber-crib, earth-filled structures. The aggregate yearly tonnage of commerce is about 2,500 tons, chiefly coal, lumber, sand, and cement, carried in barges and canal boats. The terminals are privately owned, but Clark's pier at the foot of Clinton Street is open to all water carriers on equal terms. The wharves are adequate for present requirements.

(*b*) There is direct physical connection with only one pier, and no arrangement with the railroads for interchange of traffic exists at any of the terminals.

(*c*) There are good roadways leading from the terminals.

PORT PENN, DEL.

(*a*) There are two wharves at this point, one located at the foot of the main street and the other just below. The former is of timber-crib and the latter of open-pile and timber construction. The aggre-

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

gate yearly tonnage amounts to about 1,500 tons, chiefly coal, grain, and farm products, carried in barges and canal boats. The wharves are privately owned, but open to all water carriers on equal terms, and are adequate for present requirements.

(*b*) There is no direct physical connection with the railroad from either terminal, and no arrangement exists for interchange of traffic on through freight.

(*c*) The roads leading from both terminals are in poor condition.

AUGUSTINE PARK, DEL.

(*a*) There is one open-pile wharf at this point, located on the property of the pier company, and is used principally by steamboats in landing passengers at the park during the summer season. A freight transportation company's steamer makes daily stops to receive and land freight. The aggregate yearly tonnage amounts to about 1,500 tons, chiefly grain, farm produce, and miscellaneous articles. The wharf is privately owned and not open to all water carriers, and is adequate for present requirements.

(*b*) There is no direct physical connection with any railroad from the wharf and no arrangements exist for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

BOMBAY HOOK, DEL.

(*a*) There is one open-pile wharf at this point, located on the property of the pier company. The wharf is used exclusively by steamboats in landing passengers at the park during the summer season, and no freight is carried. It is a private wharf and not open to all water carriers and adequate for present requirements.

(*b*) There is no direct physical connection with any railroad from the terminal and no arrangements exist for interchange of traffic on through freight.

(*c*) There is no roadway leading to the terminal and it can be approached only by a footpath.

BAY SIDE, N. J.

(*a*) There is one open-pile pier at this point, located on the railroad company's property. It is used only during the fishing season to land fish ashore from the boats for quick shipment by railroad to the markets. The aggregate yearly tonnage amounts to about 3,500 tons of fish, carried in small skiffs and gasoline launches. The terminal is owned by the railroad and open to all water carriers on equal terms. It is adequate for present requirements.

(*b*) There is direct physical connection with the Philadelphia & Reading Railway from the terminal, and no arrangement exists for interchange of traffic on through freight.

(*c*) There is no roadway leading from the terminal, and it can be approached only by railroad or by a footpath.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

LEWES, DEL.

(*a*) The active water front extends from the Iron Pier northward to the Queen Anne Railroad pier. There are five piers within this area, of open pile and timber construction. Three of these piers are used in connection with the operation of fish factories, and the other two are occupied by the United States and the railroad company, respectively. The aggregate yearly tonnage amounts to about 21,500 tons, chiefly coal, lumber, fish, and oil. The piers, with the exception of the Iron Pier, are privately owned and not open to all water carriers. The Iron Pier, which is owned by the United States, is not used for commercial purposes. The wharves are adequate for present requirements.

(*b*) There is no direct physical connection with the railroads to any of the terminals except at the Queen Anne pier, and no arrangements exist for interchange of traffic on through freight.

(*c*) With the exception of the Queen Anne pier, there are no good roadways leading from any of the terminals.

There being water terminals at various points on the Delaware River, whose efficiency has been reported upon above, there appears to be no occasion for an expression of opinion under the heading (*d*) of the act of July 25, 1912. While existing terminals are generally adequate for present commerce, it may be stated that some of those within the limits of Philadelphia's active water front are unduly congested with traffic and that improved terminal facilities are needed.

FINAL REPORT OF LIEUT. COL. JOSEPH E. KUHN, CORPS OF ENGINEERS, IN CHARGE OF THE PHILADELPHIA (PA.) DISTRICT.

[The letters (*a*), (*b*), (*c*), and (*d*) indicate subheadings as shown by footnotes.]

DELAWARE RIVER, PA., N. J., AND DEL.

I. TRENTON, N. J.

Wharf at the foot of Lalor Street, upper side.—(*a*) This is a concrete and timber earth-filled structure, equipped with a trestle for handling coal. Length, 30 feet; width at pierhead, 100 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. It is owned exclusively by a brewery company and used in the operation of its plant. The aggregate yearly tonnage amounts to about 8,000 tons, chiefly coal and ice carried in canal boats and barges. The wharf is adequate for present requirements. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for an interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of Lalor Street, lower side.—(*a*) This is an open-pile and timber structure partly covered by a freight shed. It has no freight-handling equipment. Length, upper side 60 feet, lower

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

side 75 feet; width at pierhead, 144 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. It is owned and used exclusively by a river transportation company for freight and passenger service. The aggregate yearly tonnage amounts to about 53,000 tons, chiefly farm produce, general merchandise, packages, and miscellaneous articles carried on steamboats. The wharf is adequate for present requirements. It is a private terminal and not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad. The river transportation company has an arrangement with the Baltimore & Ohio Railroad Co. for an interchange of traffic on through freight destined to or originating at points beyond Philadelphia, Pa.

(*c*) There is a good roadway leading from the terminal.

II. BORDENTOWN, N. J.

Wharf at the foot of a roadway near the entrance to the Delaware and Raritan Canal.—(*a*) This is a timber-crib, earth-filled structure, partly covered by a warehouse. It has no freight-handling equipment. Length, 100 feet; width at pierhead, 75 feet. Depth of water at pierhead, 9 feet at mean low water; alongside, 9 to 0 feet. It is leased and used principally by a river transportation company for freight and passenger service. The aggregate yearly tonnage amounts to about 1,500 tons, chiefly canned goods, wool, farm produce, and miscellaneous articles, carried in steamboats and barges. The wharf is adequate for present requirements. It is a private terminal, but is open to other water carriers on payment of wharfage.

(*b*) This terminal has no direct physical connection with any railroad. The river transportation company has an arrangement with the Baltimore & Ohio Railroad Co. for an interchange of traffic on through freight destined to or originating at points beyond Philadelphia, Pa.

(*c*) There is a good roadway leading from the terminal.

III. WHITEHILL, N. J.

Wharf at upper end of the borough.—(*a*) This is a timber bulkhead frontage, partly occupied by a machine shop and office. It is equipped with a stiff-legged derrick for handling freight. Length, 300 feet: depth of water, 8 feet at mean low water. It is leased by a forge and machine company, and is used exclusively in the operation of its plant. The aggregate yearly tonnage amounts to about 1,500 tons, chiefly coal, sand, and castings, carried in canal boats and barges. The wharf is adequate for present requirements. It is a private terminal, but is open to water carriers on payment of wharfage.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Wharf at the foot of Washington Street.—(*a*) This is a timber-crib, earth-filled structure, and has no freight-handling equipment. Length, 35 feet; width at pierhead, 63 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, 10 to 0 feet. It is leased by a river transportation company, and used principally for freight and passenger service. The aggregate yearly tonnage amounts to about 700 tons, chiefly farm produce and miscellaneous articles, carried in steamboats and barges. The wharf is adequate for present requirements. It is a private terminal, but is open to other water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad. The river transportation company has an arrangement with the Baltimore & Ohio Railroad Co. for an interchange of traffic on through freight destined to or originating at points beyond Philadelphia, Pa.

(*c*) There is a good roadway leading from the terminal.

IV. PENNS MANOR, PA.

Wharf at upper end of borough, at foot of roadway leading from main pike.—(*a*) This is a timber-crib, earth-filled structure, and has no freight-handling equipment. Length, 72 feet; width at pierhead, 40 feet. Depth of water at pierhead, 7 feet at mean low water; alongside, 7 to 0 feet. It is leased and used principally by a river transportation company, but is occasionally used in the spring to unload manure and fertilizer from canal boats. The aggregate yearly tonnage amounts to about 3,000 tons, chiefly manure, fertilizer, lumber, and miscellaneous articles, carried in steamboats and canal boats. The wharf is adequate for present requirements. It is a private wharf, but is open to other water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad. The river transportation company has an arrangement with the Baltimore & Ohio Railroad Co. for interchange of traffic on through freight destined to or originating at points beyond Philadelphia, Pa.

(*c*) There is a good roadway leading from the terminal.

Wharf at lower end of borough, at foot of roadway leading from main pike.—(*a*) This is a concrete, earth-filled structure, and has no freight-handling equipment. Length, 86 feet; width at pierhead, 47 feet. Depth of water at pierhead, 1 foot at mean low water; alongside, 1 to 0 feet. It is leased by William M. Leedom, and used exclusively in connection with the operation of his farm. The aggregate yearly tonnage amounts to about 800 tons, chiefly manure, phosphate, and lumber, carried in canal boats. The wharf is adequate for present requirements. It is a private wharf, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.

V. ROEBLINGS, N. J.

Wharf at lower end of village.—(*a*) This is a pile, sheathed, slag-filled structure, and has no freight-handling equipment. Length, 84 feet; width at pierhead, 50 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, 10 to 0 feet. It is owned by the mill company, and used exclusively by them. No freight is handled at the wharf, it being only used to land passengers from yachts and motor boats.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is no roadway leading from the terminal. It can only be reached by a footpath.

Wharf at upper end of village, on roadway leading from the main road.—(*a*) This is an open pile and timber structure, equipped with a boom derrick and locomotive crane for handling freight. Length, 100 feet; width at pierhead, 100 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. It is owned by the John A. Roebling's Sons Co., and used in connection with the operation of its plant. The aggregate yearly tonnage amounts to about 26,800 tons, chiefly raw material, mill supplies, general merchandise, packages, and miscellaneous articles, carried in steam packets and barges. The terminal is adequate for present requirements. It is a private wharf, and is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for an interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

VI. FLORENCE, N. J.

Wharf at foot of Broad Street.—(*a*) This a timber crib, earth-filled structure, and has no freight-handling equipment. Length, upper side 83 feet; lower side, 28 feet; width at pierhead, 100 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. It is leased to a river transportation company for freight and passenger service. The aggregate yearly tonnage amounts to about 1,200 tons, chiefly farm produce, general merchandise, packages, and miscellaneous articles, carried in steamboats. The wharf is adequate for present requirements. It is a private wharf, but is open to other water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad. The river transportation company has an arrangement with the Baltimore & Ohio Railroad Co. for an interchange of traffic on through freight destined to or originating at points beyond Philadelphia, Pa.

(*c*) There is a good roadway leading from the terminal.

Frontage at the foot of Front Street.—(*a*) This is a timber bulkhead structure, equipped with a traveling crane for handling freight. Length, 1,031 feet; depth of water, 5 to 19 feet at mean low water.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

It is owned by an ironworks company and used in the operation of its plant. The aggregate yearly tonnage amounts to about 35,000 tons, chiefly coal, sand, pipe and pipe fittings, carried in schooners, barges, and canal boats. The bulkhead is adequate for present requirements. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

VII. TULLYTOWN, PA.

Wharf at the end of a lane, directly in front of the town.—(*a*) This is a crib, earth-filled structure, and has no freight-handling equipment. Length, 143 feet; width at pierhead, 39 feet. Depth of water at pierhead, 3 feet at mean low water; alongside, 3 to 0 feet. The wharf is in a dilapidated condition and has been abandoned for commercial purposes.

(*b*) There is no direct physical connection with any railroad from the terminal.

(*c*) The roadway leading from the terminal is in poor condition.

VIII. PIPE FOUNDRY ABOVE BRISTOL, PA.

Wharf at the upper end of the property of the Standard Cast Iron Pipe & Foundry Co.—(*a*) This is an open pile and timber structure, and has no freight-handling equipment. Length, 196 feet; width at pierhead, 129 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. It is owned by the foundry company, and is used in connection with the operation of its plant. The aggregate yearly tonnage amounts to about 3,000 tons, chiefly sand and hay, carried in canal boats and schooners. The wharf is adequate for present requirements. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Frontage on property of the Standard Cast Iron Pipe & Foundry Co., directly in front of the foundry.—(*a*) This is a timber bulkhead structure, equipped with a traveling crane for handling freight. Length, 406 feet; depth of water, 12 to 15 feet at mean low water. It is owned by the foundry company and used in connection with the operation of its plant. A river transportation company's steamboats make daily stops to receive and discharge freight. The aggregate yearly tonnage amounts to about 25,000 tons, chiefly sand, iron pipe and fittings, carried in steamboats, schooners, barges, and canal boats. The wharf is adequate for present requirements. It is a private terminal and is not open to other water carriers.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., and there is an arrangement for interchange of traffic with this company.

(*c*) There is a good roadway leading from the terminal.

Wharf at the lower end of the property of the Standard Cast Iron Pipe & Foundry Co.—(*a*) This is a crib, earth-filled structure, and has no freight-handling equipment. Length, 59 feet; width at pierhead, 59 feet. Depth of water, 10 feet at mean low water; alongside, 10 to 0 feet. The wharf is owned by the foundry company, but is in a dilapidated condition and has been abandoned for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

IX. BRISTOL, PA.

Wharf at the foot of Market Street.—(*a*) This is a stone and timber, earth-filled structure, equipped with a hoister and trestle for handling coal. Length, 80 feet; width at pierhead, 133 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. It is used by a ferry company as a storage place for coal used on its boats. The aggregate yearly tonnage amounts to about 1,200 tons, carried in canal boats and barges. The wharf is adequate for present requirements. It is a private terminal and is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for an interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of Mill Street.—(*a*) This is a timber crib, earth-filled structure, partly covered. It has no freight-handling equipment. Length, 67 feet; width at pierhead, 38 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. It is leased by a river transportation company for freight and passenger service. The aggregate yearly tonnage amounts to about 2,000 tons, chiefly farm produce, general merchandise, and miscellaneous articles, carried in steamboats, barges, and canal boats. The wharf is adequate for present requirements. It is a private terminal, but open to other water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, but the river transportation company has an arrangement with the Baltimore & Ohio Railroad Co. for interchange of traffic on through freight destined to or originating at points beyond Philadelphia, Pa.

(*c*) There is a good roadway leading from the terminal.

Wharf below the foot of Mill Street.—(*a*) This is a crib, earth-filled structure, partly covered by a freight shed. It has no freight-handling equipment. Length, 70 feet; width at pierhead, 115 feet. Depth of water at pierhead, 12 feet at mean low water; alongside.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

12 to 0 feet. It is owned by a river transportation company. The aggregate yearly tonnage amounts to about 3,000 tons, chiefly farm produce, general merchandise, and packages, carried in steamboats. The wharf is adequate for present requirements. It is a private terminal and not open to other water carriers.

(*b*) The terminal has no direct physical connection with the railroads, but the river transportation company has an arrangement with the Baltimore & Ohio Railroad Co. for interchange of traffic on through freight destined to or originating at points beyond Philadelphia, Pa.

(*c*) There is a good roadway leading from the terminal.

Wharf at the entrance to Lehigh Coal & Navigation Co.'s canal.—(*a*) This is an open pile and timber structure and has no freight-handling equipment. Length, 64 feet; width at pierhead, 127 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. The wharf is used only by the canal company for boats to moor to while awaiting passage through the canal. The wharf is adequate for present requirements. It is a private terminal and not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is no roadway leading from the terminal, and it can only be reached by a footpath.

X. BURLINGTON ISLAND PARK, N. J.

Wharf on the island, directly opposite to the amusement park.—(*a*) This is an open pile and timber structure, and has no freight-handling equipment. Length, 242 feet; width at pierhead, 45 feet. Depth of water at pierhead, 8 feet at mean low water; alongside, 8 to 0 feet. The wharf is leased by a river transportation company, and is used to land passengers at the park during the summer months only. No freight is handled at the wharf. It is a private wharf and is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement with any railroad for an interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

XI. BURLINGTON, N. J.

Frontage at upper end of borough, on property of United States Cast Iron Pipe & Foundry Co.—(*a*) This is a timber bulkhead structure, equipped with a stiff-legged derrick and a traveling crane for handling freight. Length, 1,421 feet; depth of water, 10 to 12 feet at mean low water. It is owned by the foundry company and used in connection with the operation of its plant. The aggregate yearly tonnage amounts to about 38,000 tons, chiefly pig iron, pipe, pipe fittings, hay, sand, and clay, carried in schooners, barges, and

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

canal boats. The wharf is adequate for present requirements. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf between St. Mary and Catharine Streets.—(*a*) This is a crib, earth-filled structure, and has no freight-handling equipment. Length, 23 feet; width at pierhead, 46 feet. Depth of water at pierhead, 0 feet at mean low water. It is owned by F. M. Van Sciver and is not used for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

Frontage between Tatham and St. Mary Streets.—(*a*) This is a timber bulkhead structure, equipped with a stiff-legged derrick for handling freight. Length, 119 feet; depth of water, 0 feet at mean low water. It is owned by George L. Garwood, and used in connection with the operation of his plant. The aggregate yearly tonnage amounts to about 2,500 tons of coal, carried in canal boats. The wharf is adequate for present requirements. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf at foot of St. Mary Street, upper side.—(*a*) This is a timber crib, earth-filled structure, and has no freight-handling equipment. Length, upper side 42 feet, lower side 36 feet; width at pierhead, 88 feet. Depth of water at pierhead, 0 feet at mean low water. It is owned by a distilling company and is not used for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of St. Mary Street, lower side.—(*a*) This is a crib, earth-filled structure, and has no freight-handling equipment. Length, 54 feet; width at pierhead, 40 feet. Depth of water at pierhead, 4 feet at mean low water; alongside, 4 to 0 feet. It is owned and used in connection with a lumber yard. The aggregate yearly tonnage amounts to about 300 tons of lumber, carried in schooners and barges. The wharf is adequate for present requirements. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad and there is no arrangement for an interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf between York and Dilwin Streets.—(*a*) This is a timber crib, earth-filled structure, and is equipped with a stiff-legged derrick for handling freight. Length, upper side 108 feet, lower side 51 feet; width at pierhead, 119 feet. Depth of water at pierhead, 11 feet at

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

mean low water; alongside, 10 to 0 feet. It is owned by the municipality, and is used in connection with the waterworks. The aggregate yearly tonnage amounts to about 500 tons of coal, carried in canal boats. The wharf is adequate for present requirements. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf between Stacy and York Streets.—(*a*) This is a crib, earth-filled structure, equipped with a stiff-legged derrick for handling freight. Length, upper side, 47 feet; lower side, 118 feet; width at pierhead, 46 feet. Depth of water at pierhead, 3 feet at mean low water; alongside, 3 to 0 feet. The wharf is used in connection with a storage warehouse. The aggregate yearly tonnage amounts to about 500 tons of coal, carried in canal boats. The wharf is adequate for present requirements. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of Stacy Street, lower side.—(*a*) This is a crib, earth-filled structure, and has no freight-handling equipment. Length, 178 feet; width at pierhead, 50 feet. Depth of water at pierhead, 3 feet at mean low water; alongside, 3 to 0 feet. It is used in connection with a supply company. The aggregate yearly tonnage amounts to about 700 tons, chiefly cordwood and farming machinery, carried in barges and canal boats. The wharf is adequate for present requirements. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of High Street, upper side.—(*a*) This is a crib, earth-filled structure, equipped with a stiff-legged derrick for handling freight. Length, 107 feet; width at pierhead, 54 feet. Depth of water at pierhead, 1 foot at mean low water; alongside, 1 to 0 feet. It is owned by a supply company and used in connection with their plant. The aggregate yearly tonnage amounts to about 5,500 tons of coal, carried in canal boats. The wharf is adequate for present requirements. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of High Street.—(*a*) This is a crib, earth-filled structure, covered by a shed. It has no freight-handling equipment. Length, 48 feet; width at pierhead, 83 feet. Depth of water at pier-

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

head, 12 feet at mean low water; alongside, 12 to 2 feet. The aggregate yearly tonnage amounts to about 1,000 tons, chiefly farm produce, oysters, and fish. The wharf is dilapidated and needs extensive repairs. It is a public pier, owned by the municipality, and is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf between High and Wood Streets.—(*a*) This is a stone and timber, earth-filled structure, partly covered by a shed, and is equipped with two stiff-legged derricks for handling freight. Length, 109 feet; width at pierhead, 78 feet. Depth of water at pierhead, 8 feet at mean low water; alongside, 8 to 0 feet. It is used in connection with a coal yard. The aggregate yearly tonnage amounts to about 6,000 tons of coal, carried in canal boats. The wharf is adequate for present requirements. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf between High and Wood Streets.—(*a*) This is a pile and timber structure, partly covered by a warehouse. It has no freight-handling equipment. Length, 112 feet; width at pierhead, 62 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, 10 to 1 feet. It is owned and used by a river transportation company in the freight and passenger service. The aggregate yearly tonnage amounts to 3,000 tons, chiefly farm produce, general merchandise, and miscellaneous articles, carried in steamboats. The wharf is adequate for present requirements. It is a private terminal, and is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad. The river transportation company has an arrangement with the Baltimore & Ohio Railroad Co. for interchange of traffic on through freight destined to or originating at points beyond Philadelphia, Pa.

(*c*) There is a good roadway leading from the terminal.

Wharf just below Read Street, on the property of the Devlin Manufacturing Co.—(*a*) This is an open pile and timber structure, and has no freight-handling equipment. Length, 50 feet; width, at pierhead, 40 feet. Depth of water at pierhead, 8 feet at mean low water; alongside, 8 to 0 feet. It is owned by a manufacturing company, and used in connection with their plant. A river transportation company's boat makes daily stops to receive and discharge freight. The aggregate yearly tonnage amounts to about 12,000 tons, chiefly pipe, pipe fittings, and general merchandise, carried in steamboats. The wharf is adequate for present requirements. It is a private terminal, and is not open to other water carriers.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*b*) The terminal has no direct physical connection with any railroad, but the tracks of the Pennsylvania Railroad Co. are on the property near by. The river transportation company has an arrangement with the Baltimore & Ohio Railroad Co. for interchange of traffic on through freight destined to or originating at points beyond Philadelphia, Pa.

(*c*) There is a good roadway leading from the terminal.

XII. BEVERLY, N. J.

Wharf near the foot of Cooper Street.—(*a*) This is a timber and concrete, earth-filled structure, equipped with a stiff-legged derrick for handling freight. Length, 44 feet; width at pierhead, 128 feet. Depth of water at pierhead, 0 feet at mean low water. It is used in connection with a coal yard. The aggregate yearly tonnage amounts to about 3,500 tons of coal, carried in canal boats. The wharf is adequate for present requirements. It is a private wharf, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of Laurel Street.—(*a*) This is an open pile and timber structure, and has no freight-handling equipment. Length, 160 feet; width at pierhead, 40 feet. Depth of water at pierhead, 8 feet at mean low water; alongside, 8 to 0 feet. The wharf is owned by a water company, is in a dilapidated condition, and has been abandoned for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of Broad Street.—(*a*) This is a timber-crib, earth-filled structure partly covered by a freight shed. It has no freight-handling equipment. Length, 66 feet; width at pierhead, 40 feet. Depth of water at pierhead, 9 feet at mean low water; alongside, 9 to 0 feet. It is owned and used by a river-transportation company in the freight and passenger service. The aggregate yearly tonnage amounts to about 2,000 tons, chiefly farm produce, general merchandise, and miscellaneous packages, carried in steamboats. The wharf is adequate for present requirements. It is a private terminal and is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad. The river-transportation company has an arrangement with the Baltimore & Ohio Railroad Co. for interchange of traffic on through freight destined to or originating at points beyond Philadelphia, Pa.

(*c*) There is a good roadway leading from the terminal.

Wharf near the foot of Broad Street, lower side.—(*a*) This is a timber-crib, earth-filled structure and has no freight-handling equipment. Length, upper side, 59 feet; lower side, 115 feet; width at

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

pierhead, 59 feet. Depth of water at pierhead, 9 feet at mean low water; alongside, 9 to 0 feet. It is owned by a river-transportation company, but is not used for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

XIII. EDDINGTON, PA.

Wharf on the property of M. E. Mundy.—(*a*) This is a timber-crib, earth-filled structure and has no freight-handling equipment. Length, 121 feet; width at pierhead, 47 feet. Depth of water at pierhead, 9 feet at mean low water; alongside, 9 to 0 feet. It is a private wharf and has been abandoned for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

XIV. CORNWELLS, PA.

Wharf on the property of the Enterprise Manufacturing Co.—(*a*) This is a concrete, earth-filled structure, and has no freight-handling equipment. Length, 115 feet; width at pierhead, 50 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. It is used in connection with a manufacturing plant. The steamboats of a river transportation company make daily stops to receive and discharge freight for the plant. The aggregate yearly tonnage amounts to about 1,500 tons, chiefly sand, coal, and general merchandise, carried in canal and steam boats. The wharf is adequate for present requirements. It is a private wharf and is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad, but the Pennsylvania Railroad Co.'s tracks are near by on the property. The river transportation company has an arrangement with the Baltimore & Ohio Railroad Co. for interchange of traffic on through freight destined to or originating at points beyond Philadelphia, Pa.

(*c*) There is a fair roadway leading from the terminal.

XV. DELANCO, N. J.

Wharf at the foot of Union Street.—(*a*) This is timber-crib, earth-filled structure, and has no freight-handling equipment. Length, 57 feet; width at pierhead, 50 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 to 0 feet. It is leased by a river transportation company and used in the freight and passenger service. The aggregate yearly tonnage amounts to about 100 tons, chiefly packages and general merchandise, carried in steamboats. The wharf is adequate for present requirements. It is a private terminal and is not open to other water carriers.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*b*) The terminal has no direct physical connection with any railroad. The river transportation company has an arrangement with the Baltimore & Ohio Railroad Co. for interchange of traffic on through freight destined to or originating at points beyond Philadelphia, Pa.

(*c*) There is a good roadway leading from the terminal.

XVI. RIVERTON, N. J.

Wharf at foot of Main Street.—(*a*) This is a timber-crib, earth-filled structure, partly covered by a frame building at the outer end. It has no freight-handling equipment. Length, 295 feet; width at pierhead, 48 feet. Depth of water at pierhead, 7 feet at mean low water; alongside, 7 to 0 feet. It is owned by a pier company, and wharfage privileges are rented to a river transportation company, whose boats make daily stops. The aggregate yearly tonnage amount to about 150 tons, chiefly packages and general merchandise, carried in steamboats. The wharf is adequate for present requirements. It is a private terminal and is not open to other water cariers.

(*b*) The terminal has no direct physical connection with any railroad. The river transportation company has an arrangement with the Baltimore & Ohio Railroad Co. for interchange of traffic on through freight destined to or originating at points beyond Philadelphia, Pa.

(*c*) There is a good roadway leading from the terminal.

XVII. TORRESDALE, PA.

Wharf at the foot of Fitler Street.—(*a*) This is a timber-crib, earth-filled structure, partly covered by a frame building. It has no freight-handling equipment. Length, 83 feet; width at pierhead, 60 feet. Depth of water at pierhead, 9 feet at mean low water; alongside, 9 to 0 feet. It is used by a river transportation company in the freight and passenger service. The aggregate yearly tonnage amounts to about 50 tons, chiefly packages and general merchandise, carried in steamboats. The wharf is adequate for present requirements. It is a private terminal, but is open to other water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad. The river transportation company has an arrangement with the Baltimore & Ohio Railroad Co. for interchange of traffic on through freight destined to or originating at points beyond Philadelphia. Pa.

(*c*) There is a good roadway leading from the terminal.

XVIII. TACONY, PA.

Wharf at foot of Holmesburg Avenue.—(*a*) This is a pile and timber structure, and has no freight-handling equipment. Length, 150 feet; width at pierhead, 80 feet. Depth of water at pierhead, 9

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

feet at mean low water; alongside, 9 to 0 feet. The wharf is used exclusively by the municipality to land passengers ashore at the house of correction. There is no commerce passing over the terminal.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

Wharf between Sanger and Vankirk Streets.—(*a*) This is a timber-crib, earth-filled structure, and has no freight-handling equipment. Length, 340 feet; width at pierhead, 50 feet. Depth of water at pierhead, 14 feet at mean low water; alongside, 14 to 0 feet. The pier is used in connection with an industrial establishment, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 3,000 tons, chiefly coal and miscellaneous supplies, carried in sailing vessels and barges. The terminal is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

XIX. BRIDESBURG, PA.

Wharf at the mouth of Frankford Creek, Pa.—(*a*) This is a timber bulkhead frontage. Length, 1,500 feet; depth of water, 2 to 5 feet at mean low water. The pier is used in connection with a chemical works, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 5,600 tons of chemicals, carried in barges and lighters. The terminal is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf between Juniata and Bristol Streets.—(*a*) This is a timber-crib, earth-filled structure, and has no freight-handling equipment. Length, 130 feet; width at pierhead, 100 feet. Depth of water at pierhead, 2 feet at mean low water; alongside, 2 to 0 feet. The pier is owned and used in connection with a brickyard and is adequate for present requirements. The aggregate yearly tonnage amounts to about 6,500 tons of bricks, carried in canal boats and barges. The terminal is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf at foot of Harrison Street.—(*a*) This is a timber-crib, earth-filled structure, and has no freight-handling equipment. Length, 170 feet; width at pierhead, 50 feet. Depth of water at pierhead, 1 foot at mean low water; alongside, 1 to 0 feet. The pier is used in connection with an industrial establishment, and is adequate

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

for present requirements. The aggregate yearly tonnage amounts to about 1,500 tons, chiefly coal, timber, and manure, carried in barges. The terminal is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

XX. FISH HOUSE, N. J.

Wharf on the property of the Atlas Cereal Manufacturing Co.—(*a*) This is an open pile and timber structure, partly covered by a frame building. It has no freight-handling equipment. Lenth, 200 feet; width at pierhead, 188 feet. Depth of water at pierhead, 2 feet at mean low water; alongside, 2 to 0 feet. It is a private wharf, and is not used for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) The roadway leading from the terminal is in bad condition.

XXI. DELAIR, N. J.

Frontage on the property of Isaiah Hatch.—(*a*) This is a timber bulkhead structure, equipped with a stiff-legged derrick for handling freight. Length, 300 feet; depth of water, 0 feet at mean low water. It is used by a brick-manufacturing company in connection with the operation of its plant. The aggregate yearly tonnage amounts to about 27,000 tons, chiefly bricks, coal, and manure, carried in canal boats. The wharf is adequate for present requirements. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) The roadway leading from the terminal is in bad condition.

XXII. CAMDEN, N. J.

Pier No. 1, between Twenty-eighth and Twenty-ninth Streets.—(*a*) This is a timber-crib earth-filled structure and has no freight-handling equipment. Length, 342 feet; width at pierhead, 41 feet. Depth of water at pierhead, 5 feet at mean low water; alongside, 5 to 0 feet. It is used in connection with the operations of a ship-repair yard. The aggregate yearly tonnage amounts to about 50 tons of lumber, carried in canal boats. The wharf is adequate for present requirements. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) The roadway leading from the terminal is in fair condition.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Pier No. 2, between Twenty-eighth and Twenty-ninth Streets.—(*a*) This is an open pile and timber structure, partly covered at the outer end by a frame building. It has no freight-handling equipment. Length, 346 feet; width at pierhead, 40 feet. Depth of water at pierhead, 5 feet at mean low water; alongside, 5 to 0 feet. It is used by a ferry company for freight and passenger service. The aggregate yearly tonnage amounts to about 50 tons, chiefly packages and general merchandise, carried in steamboats. The wharf is adequate for present requirements. It is a private terminal and is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) The roadway leading from the terminal is in fair condition.

Piers Nos. 3 and 4, between Twenty-seventh and Twenty-eighth Streets.—(*a*) These piers are located on the property of a boat-building establishment and are used in connection with its plant.

Pier No. 3 is an open pile and timber structure. Length, 397 feet; width at pierhead, 36 feet. Depth of water at pierhead, 16 feet at mean low water; alongside, 16 to 0 feet.

Pier No. 4 is constructed of two old car floats set end to end and moored between piling. Length, 390 feet. Width at pierhead, 33 feet. Depth of water at pierhead, 15 feet at mean low water; alongside, 15 to 0 feet.

These two wharves have no freight-handling equipment and no commerce passes over them. They are private terminals and are not open to water carriers generally.

(*b*) The terminals have no direct physical connection with any railroad.

(*c*) There is a good roadway leading from each terminal.

Pier No. 5, at the foot of Twenty-seventh Street.—(*a*) This is an open pile and timber structure, with a floating dry dock at the outer end. It has no freight-handling equipment. Length, 400 feet. Width at pierhead, 30 feet. Depth of water at pierhead, 9 feet at mean low water; alongside, 9 to 0 feet. It is used in connection with the operations of a boat-building and repair plant. The aggregate yearly tonnage amounts to about 35 tons of lumber, carried in barges. The wharf is adequate for present requirements. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 6, at the foot of Twenty-fifth Street.—(*a*) This is a timber-crib, earth-filled structure, partly covered at the outer end by a brick building. It has no freight-handling equipment. Length, 196 feet; width, 77 feet. Depth of water at pierhead, 5 feet at mean low water; alongside, 5 to 2 feet. It is owned by the municipality, and was formerly used in connection with a pumping plant, but has been abandoned for commercial purposes.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) The roadway leading from the terminal is in bad condition.

Piers Nos. 7, 8, and 9, between Fifth and Sixth Streets.—(*a*) These piers are located on the property of a ship-repair establishment, and are used in connection with its plant.

Pier No. 7 is an open pile and timber structure. Length, 620 feet; width at pierhead, 57 feet. Depth of water at pierhead, 4½ feet at mean low water; alongside, 4½ to 2 feet.

Pier No. 8 is an open pile and timber structure. Length, 596 feet; width at pierhead, 41 feet. Depth of water at pierhead, 5 feet at mean low water; alongside, 5 to 0 feet.

Pier No. 9 is an open pile and timber structure. Length, 605 feet; width at pierhead, 24 feet. Depth of water at pierhead, 5 feet at mean low water; alongside, 5 to 0 feet.

The aggregate yearly tonnage amounts to about 700 tons of coal, carried in canal boats. The piers are adequate for present requirements. They are private terminals, and are not open to water carriers generally.

(*b*) The terminals have no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 10, at the head of Second Street.—(*a*) This is a crib, earth-filled structure, equipped with two stiff-legged derricks for handling freight. Length, 250 feet; width at pierhead, 100 feet. Depth of water at pierhead, 1 foot at mean low water; alongside, 1 to 0 feet. It is used in connection with a coal yard. The aggregate yearly tonnage amounts to about 700 tons of coal, carried in canal boats. The wharf is adequate for present requirements. It is a private terminal, but is open to water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 11, 12, and 13, between Point and Front Streets.—(*a*) These piers are located on the property of a shipyard company and are used in connection with its plant.

Pier No. 11 is an open pile and timber structure. Length, 305 feet; width at pierhead, 15 feet. Depth of water at pierhead, 1½ feet at mean low water; alongside, 1½ to 0 feet.

Pier No. 12 is an open pile and timber structure. Length, 291 feet; width at pierhead, 9 feet. Depth of water at pierhead, 1½ feet at mean low water; alongside, 1½ to 0 feet.

Pier No. 13 is an open pile and timber structure. Length, upper side, 291 feet; lower side, 379 feet; width at pierhead, 23 feet. Depth of water at pierhead, 4 feet at mean low water; alongside, 4 to 0 feet.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

These three wharves have no freight-handling equipment, and no commerce passes over them. They are private terminals and are not open to water carriers generally.

(*b*) The terminals have no direct physical connection with any railroad.

(*c*) There is a good roadway leading from each terminal.

Piers Nos. 14, 15, 16, and 17, between Point and Erie Streets.—(*a*) These piers are located on the property of a ship-repair establishment and are used in connection with its plant.

Pier No. 14 is a crib earth-filled structure. Length, upper side, 237 feet; lower side, 226 feet; width at pierhead, 33½ feet. Depth of water at pierhead, 0 feet at mean low water.

Pier No. 15 is an open pile and timber structure. Length, 259 feet; width at pierhead, 123 feet. Depth of water at pierhead, 5 feet at mean low water; alongside, 5 to 0 feet.

Pier No. 16 is an open pile and timber structure. Length, 363 feet; width at pierhead, 10 feet. Depth of water at pierhead, 7 feet at mean low water; alongside, 7 to 0 feet.

Pier No. 17 is an open pile and timber structure. Length, 451 feet; width at pierhead, 32 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, 10 to 0 feet.

These four wharves have no freight-handling equipment, and no commerce passes over them. They are private terminals and are not open to water carriers generally.

(*b*) The terminals have no direct physical connection with any railroad.

(*c*) There is a good roadway leading from each terminal.

Pier No. 18, at the foot of Erie Street.—(*a*) This is a pile and timber structure, partly covered at the inner end by a frame building. It has no freight-handling equipment. Length, 288 feet; width at pierhead, 171 feet. Depth of water at pierhead, 5 feet at mean low water; alongside, 5 to 0 feet. The pier is leased by a firm of wharf builders and used in connection with their business. No commerce passes over the pier, and it is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a fair roadway leading from the terminal.

Pier No. 19, at the foot of York Street.—(*a*) This is a crib earth-filled structure, partly covered at the inner end by a frame building. It has no freight-handling equipment. Length, 528 feet; width at pierhead, 30 feet. Depth of water at pierhead, 8 feet at mean low water; alongside, 8 to 0 feet. The pier is leased by a dredging company and is used in connection with its business. No commerce passes over the pier. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 20, 21, and 22, between York and Vine Streets.—(*a*) These piers are located on the property of the Pennsylvania Railroad Co.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Pier No. 20 is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 248 feet; width at pierhead, 198 feet. Depth of water at pierhead, 5 feet at mean low water; alongside, 5 to 2 feet.

Pier No. 21 is a timber-crib earth-filled structure, equipped with a stiff-legged derrick for handling freight. Length, upper side, 254 feet; lower side, 432 feet; width at pierhead, 23 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, 10 to 2 feet.

Pier No. 22 is a timber-crib earth-filled structure, equipped with a stiff-legged derrick for handling freight. Length, upper side, 338 feet; lower side, 171 feet; width at pierhead, 43 feet. Depth of water at pierhead, 3 feet at mean low water; alongside, 3 to 0 feet.

These three piers are owned and used by the Pennsylvania Railroad Co., and are adequate for present requirements. The aggregate yearly tonnage amounts to about 125,000 tons, chiefly railroad ties, sand, and lumber, carried in canal boats and barges. The terminals are open to all water carriers, and no charge for wharfage is made, provided a reasonable amount of the vessel's cargo is moved in connection with the railroad.

(*b*) The terminals have direct physical connection with the Camden & Atlantic Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 23, between Elm and Vine Streets.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 480 feet; width at pierhead, 48 feet. Depth of water at pierhead, 0 feet at mean low water. It is used in connection with a lumber yard. The aggregate yearly tonnage amounts to about 7,500 tons of lumber, carried in barges. The wharf is adequate for present requirements. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co. from the yard, but there is no arrangement for an interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 24, at the foot of Elm Street, south side.—(*a*) This is a timber-crib earth-filled structure, partly covered at the outer end by a frame building. It is equipped with a stiff-legged derrick for handling freight. Length, upper side, 675 feet; lower side, 320 feet; width at pierhead, 70 feet. Depth of water at pierhead, 8½ feet at mean low water; alongside, 8½ to 0 feet. The pier is used in connection with a paper mill. The aggregate yearly tonnage amounts to about 8,000 tons, chiefly coal, sand, and paper stock, carried in schooners, canal boats, and barges. The wharf is adequate for present requirements. It is a private terminal, but is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.

Pier No. 25, between Elm and Pearl Streets.—(*a*) This is a timber-crib earth-filled structure, with frame buildings at the inner end. It is equipped with two stiff-legged derricks for handling freight. Length, upper side 405 feet, lower side 569 feet; width at pierhead, 88 feet. Depth of water at pierhead, 8 feet at mean low water; alongside, 8 to 0 feet. The pier is used in connection with a lumber yard. The aggregate yearly tonnage amounts to about 23,000 tons of lumber, carried in lighters and barges. The pier is adequate for present requirements. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad and the Philadelphia & Reading Railway companies, via belt line, but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 26, at the foot of Pearl Street, south side.—(*a*) This is a crib earth-filled structure, partly covered by a frame building. It is equipped with a traveling crane for handling freight. Length, 765 feet; width at pierhead, 51 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, 10 to 0 feet. The pier is used in connection with a sawmill and lumber yard. The aggregate yearly tonnage amounts to about 10,000 tons of lumber, carried in steamers, schooners, lighters, and barges. The pier is adequate for present requirements. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad and the Philadelphia & Reading Railway companies, via belt line, but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 27 and 28, at the foot of Linden Street.—(*a*) Pier No. 27 is a timber-crib earth-filled structure, equipped with a coal trestle at outer end of pier. Length, upper side 840 feet, lower side 175 feet; width at pierhead, 48 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, 10 to 8 feet.

Pier No. 28 is a timber-crib earth-filled structure and has no freight-handling equipment. Length, upper side 175 feet; lower side 285 feet; width at pierhead, 48 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, 10 to 0 feet.

These piers are located on the property of the Philadelphia & Reading Railway Co., and are used exclusively for docking and landing car floats carrying cars of miscellaneous merchandise between Philadelphia and Camden. No other vessels of any kind use this terminal. Information as to yearly tonnage is not available. The piers are adequate for present requirements.

(*b*) The terminals have direct physical connection with the Philadelphia & Reading Railway Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Pier No. 29, between Linden and Penn Streets.—(*a*) This is a crib earth-filled structure, covered its entire length by a frame shed. It has no freight-handling equipment. Length, upper side 448 feet; lower side 456 feet; width at pierhead, 73 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 to 0 feet. The aggregate yearly tonnage amounts to about 2,500 tons, chiefly canned goods, carried on lighters and gasoline boats. The pier is adequate for present requirements. It is a private terminal, principally used in connection with a canning factory for storage purposes but is open to all water carriers on payment of wharfage.

(*b*) The terminal has direct connection with the Pennsylvania Railroad and the Philadelphia & Reading Railway companies, via belt line, but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 30, at the foot of Cooper Street.—(*a*) This is a concrete structure on piling, filled with earth. It has no freight-handling equipment. Length, upper side 390 feet; lower side 370 feet; width at pierhead, 60 feet; depth of water at pierhead, 10 feet at mean low water; alongside, 10 to 2 feet. The aggregate yearly tonnage amounts to about 18,000 tons, chiefly sand, stone, and building material, carried in barges, lighters, and canal boats. The terminal is adequate for present requirements. It is owned by the municipality and is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 31, between Cooper and Market Streets.—(*a*) This is a crib earth-filled structure, partly covered by a frame building. It is equipped with derricks and steam hoisters for handling freight. Length, 375 feet; width at pierhead, 200 feet; depth of water at pierhead, 3 feet at mean low water; alongside, 3 to 0 feet. The aggregate yearly tonnage amounts to about 28,000 tons, chiefly coal, lumber, and building material, carried in small sailing vessels, barges, and lighters. The terminal is adequate for present requirements. It is a private pier, operated in connection with a talking-machine factory, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 32, at foot of Market Street, north side.—(*a*) This is a timber-crib earth-filled structure and has no freight-handling equipment. Length, 249 feet; width at pierhead, 65 feet; depth of water at pierhead, 4 feet at mean low water; alongside, 4 to 2 feet. The aggregate yearly tonnage amounts to about 12,000 tons of bricks, carried in small sailing vessels and canal boats. The terminal is adequate for present requirements. It is a private pier, operated in

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

connection with a brickyard, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pennsylvania Railroad Co.'s property, lying between Market and Clinton Streets, a distance of about 2,560 feet, described as follows:

1. Frontage between Market and Arch Streets.—(*a*) This is a timber bulkhead, partly covered by a coal bin, and equipped with three stiff-legged derricks for handling coal. Length, 328 feet; depth of water, 6 feet at mean low water. The aggregate yearly tonnage amounts to about 15,000 tons of coal, carried in canal boats. The frontage is adequate for present requirements. It is used for the storage of coal to be used by the company's ferry boats.

2. Wharf between Market and Arch Streets.—(*a*) This is an open pile and timber structure and has no freight-handling equipment. Length, 245 feet; width at pierhead, 35 feet. Depth of water at pierhead, 11 feet at mean low water; alongside, 11 to 6 feet. No commerce passes over this wharf, it being only used by the company as a mooring for vessels.

3. Frontage between Arch Street and Bridge Avenue.—(*a*) This is a timber bulkhead structure, partly covered by frame buildings. It has no freight-handling equipment. Length, 442 feet; depth of water, 3 feet at mean low water. No commerce passes over this frontage, it being only used by the company for the storage of idle cars.

4. Wharf at about the foot of Bridge Avenue.—(*a*) This is an open pile and timber structure, partly covered by a car barn and repair shop. It has no freight-handling equipment. Length, upper side, 247 feet; lower side, 255 feet; width at pierhead, 102 feet. Depth of water at pierhead, 16 feet at mean low water; alongside, 16 to 3 feet. No commerce passes over this terminal, it being only used as a storage for cars awaiting or undergoing repairs.

5. Frontage between Mickle and Stevens Streets.—(*a*) This is a timber bulkhead, partly covered by a freight shed. It has no freight-handling equipment. Length, 450 feet; depth of water, 3 feet at mean low water. No commerce passes over this terminal, it being only used as a mooring for idle car floats.

6. Wharf at the foot of Stevens Street.—(*a*) This is a crib, earth-filled structure, inclosing a car float ferry slip. Length, upper side 481 feet, lower side 483 feet; width at inner end, 178 feet. Depth of water at pierhead, 8 feet at mean low water; alongside, 8 to 3 feet. This terminal is used in connection with a car float ferry, from which freight cars are transferred to and fro between Philadelphia and Camden. Information as to the yearly tonnage is not available.

These terminals are used in connection with the railroad and are not open to other water carriers.

(*b*) The terminals, with the exception of Nos. 1 and 2, have direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*c*) There is a good roadway leading from each terminal.

Pier No. 33, at the foot of Clinton Street.—(*a*) This is a crib, earth-filled structure, and has no freight-handling equipment. Length, 375 feet; width at pierhead, 50 feet. Depth of water at pierhead, 2 feet at mean low water; alongside, 2 to 0 feet. No commerce passes over this pier, owing to the fact that it is not yet completed. It is owned by the municipality, and when completed will be open to all water carriers on equal terms.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) The roadway leading to the terminal has not yet been constructed.

Piers Nos. 34 and 35, between Beckett and Division Streets.—(*a*) Pier No. 34 is a timber-crib, earth-filled structure, and has no freight-handling equipment. Length, 200 feet; width at pierhead, 230 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 to 0 feet.

Pier No. 35 is a timber-crib, earth-filled structure, partly covered by frame buildings. It is equipped with derricks and overhead cranes for handling freight. Length, upper side 320 feet; lower side 330 feet; width at pierhead, 160 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet.

These piers are located on the property of a dredging company, and are used in connection with its plant, principally for repairs to dredges and scows. The aggregate yearly tonnage amounts to about 2,500 tons, chiefly coal and lumber. They are private terminals, and are not open to water carriers generally.

(*b*) The terminals have no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Piers Nos. 36, 37, and 38, between Walnut Street and Kaighns Avenue.—(*a*) Pier No. 36 is a timber-crib, earth-filled structure, partly covered by frame buildings. It is equipped with overhead coal unloading appliances. Length, upper side 246 feet; lower side 239 feet; width at pierhead, 66 feet. Depth of water at pierhead, 21 feet at mean low water; alongside, 21 to 8 feet.

Pier No. 37 is an open pile and timber structure, equipped with a steam crane and overhead trestle for handling freight. Length, 198 feet; width at pierhead, 58 feet. Depth of water at pierhead, 19 feet at mean low water; alongside, 19 to 4 feet.

Pier No. 38 is a timber-crib, earth-filled structure, and has no freight-handling equipment. Length, 100 feet; width at pierhead, 40 feet. Depth of water at pierhead, 15 feet at mean low water; alongside, 15 to 3 feet.

These piers are located on the property of and used in connection with a coke plant. The aggregate yearly tonnage amounts to about 340,000 tons, chiefly coal, coke, and coal tar. The piers are adequate for present requirements. They are private terminals, and are not open to water carriers generally.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*b*) The terminals have direct physical connection with the Pennsylvania Railroad and the Philadelphia & Reading Railway companies, but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier 39, between Chestnut Street and Kaighns Avenue.—(*a*) This is a timber-crib, earth-filled structure, equipped with a stiff-legged derrick for handling freight. Length, 45 feet; width at pierhead, 26 feet. Depth of water at pierhead, 2 feet at mean low water; alongside, 2 to 0 feet. The pier is used in connection with a coal yard. The aggregate yearly tonnage amounts to about 12,000 tons of coal, carried in canal boats and barges. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 40, between Chestnut Street and Kaighns Avenue.—(*a*) This is a timber-crib, earth-filled structure, and has no freight-handling equipment. Length, 98 feet; width at pierhead, 18 feet. Depth of water at pierhead, 3 feet at mean low water; alongside, 3 to 0 feet. The pier was formerly used in connection with a coal yard, but has been abandoned for commercial purposes for several years.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

Pier No. 41, at the foot of Kaighns Avenue, south side.—(*a*) This pier, located on the property of the Philadelphia & Reading Railway Co., is an open pile and timber structure, partly covered by a frame shed. It has no freight-handling equipment. Length, 104 feet; width at pierhead, 100 feet. Depth of water at pierhead, 16 feet at mean low water; alongside, 16 to 6 feet. It is used in connection with the Philadelphia & Reading Railway Co.'s yard, and is only used as a storage place for idle cars. The pier is adequate for present requirements. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Philadelphia & Reading Railway Co.

(*c*) There is a good roadway leading from the terminal.

Pier No. 42, near the foot of Kaighns Avenue, north side.—(*a*) This is a crib earth-filled structure, partly covered at the inner end by frame buildings. It has no freight-handling equipment. Length, upper side, 25 feet; lower side, 271 feet; width at pierhead, 71 feet. Depth of water at pierhead, 7 feet at mean low water; alongside, 7 to 2 feet. The pier is used in connection with a sawmill and lumber yard, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 8,400 tons of lumber, carried in sailing vessels and barges. It is a private terminal, and is not open to water carriers generally.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*b*) The terminal has direct physical connection from the yard with the Philadelphia & Reading Railway Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 43, 44, and 45, between Atlantic Avenue and Lemon Street.—(*a*) Pier No. 43 is a timber-crib earth-filled structure, partly covered by a frame building at the inner end. It is equipped with shear legs. Length, upper side, 249 feet; lower side, 424 feet; width at pierhead, 76 feet. Depth of water at pierhead, 17 feet at mean low water; alongside, 17 to 5 feet.

Pier No. 44 is an open pile and timber structure, and has no freight-handling equipment. Length, 287 feet; width at pierhead, 18 feet. Depth of water at pierhead, 18 feet at mean low water; alongside, 18 to 5 feet.

Pier No. 45 is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, upper side, 450 feet; lower side, 470 feet; width at pierhead, 58 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet.

These piers are located on the property of a shipbuilding establishment, and are used in connection with its shipyard. They are adequate for present requirements. The aggregate yearly tonnage amounts to about 2,000 tons, chiefly coal and lumber, carried in canal boats and barges. They are private terminals, and are not open to water carriers generally.

(*b*) Pier No. 43 only has direct physical connection with the Philadelphia & Reading Railway Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 46, at the foot of Winslow Street, south side.—(*a*) This is an open pile and timber structure, equipped with stiff-legged derricks for handling freight. Length, upper side, 400 feet; lower side, 175 feet; width at pierhead, 30 feet. Depth of water at pierhead, 26 feet at mean low water; alongside, 26 to 7 feet. The pier is used in connection with a manufacturing establishment, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 35,000 tons of chalk, carried in steamboats and sailing vessels. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 47, between Winslow Street and Jefferson Avenue.—(*a*) This is a timber bulkhead frontage, partly covered by a building. It is equipped with a derrick hoist for handling freight. Length, 225 feet: depth of water, 6 to 8 feet at mean low water. The pier is used in connection with a manufacturing establishment, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 12,000 tons of cork waste, carried in lighters and barges. It is a private terminal, and is not open to water carriers generally.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads
(*c*) Connection with highways.

(*b*) The terminal has no direct physical connection with any ra road and there is no arrangement for interchange of traffic on throu freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 48, between Jefferson Avenue and Chelton Street.—(This is a crib earth-filled structure, partly covered by a frame bui ing. It is equipped with a locomotive crane for handling freig Length, upper side, 390 feet; lower side, 416 feet; width at pierhe 256 feet. Depth of water at pierhead, 26 feet at mean low wat alongside, 26 to 6 feet. It is used in connection with a manufacturi establishment, and is adequate for present requirements. The agg gate yearly tonnage amounts to about 70,000 tons, chiefly coal a licorice root, carried in steamers, barges, and lighters. It is a priv terminal and is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Phi delphia & Reading Railway Co., but there is no arrangement f an interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 49, at foot of Bulson Street.—(*a*) This is a crib eart filled structure, partly covered at the inner end by a frame buildi It has no freight-handling equipment. Length, 410 feet; width pierhead, 60 feet. Depth of water at pierhead, 13 feet at mean l water; alongside, 13 to 5 feet. This pier is located on the proper of the Philadelphia & Reading Railway Co., and is used by the ra road in connection with a carfloat ferry. There are no reliable f ures as to the amount of tonnage over the pier. The terminal is ad quate for the present requirements. It is a private terminal, b open to all water carriers and no charge for wharfage is made, pr vided a reasonable amount of the vessel's cargo is moved in connecti with the railroad.

(*b*) The terminal has direct physical connection with the Phil delphia & Reading Railway Co., but there is no arrangement f interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 50 and 51, between Bulson and Fairview Streets.—(*a* Pier No. 50 is a stone and timber earth-filled structure, partly cover at the inner end by a frame building. It has no freight-handlin equipment. Length, upper side, 405 feet; lower side, 750 feet; widt at pierhead, 418 feet. Depth of water at pierhead, 13 feet at mea low water; alongside, 13 to 6 feet.

Pier No. 51 is a pile and timber structure, and has no freight-handling equipment. Length, upper side, 800 feet; lower side, 46 feet; width at pierhead, 68 feet. Depth of water at pierhead, 3 feet at mean low water; alongside, 36 to 25 feet.

These piers are located on the property of a shipyard, and used in connection with its operations. The aggregate yearly tonnag amounts to about 5,000 tons, chiefly lumber, coal, and iron castings, carried in canal boats and barges, for use in connection with the plant The piers are adequate for present requirements. They are private terminals and are not open to water carriers generally.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

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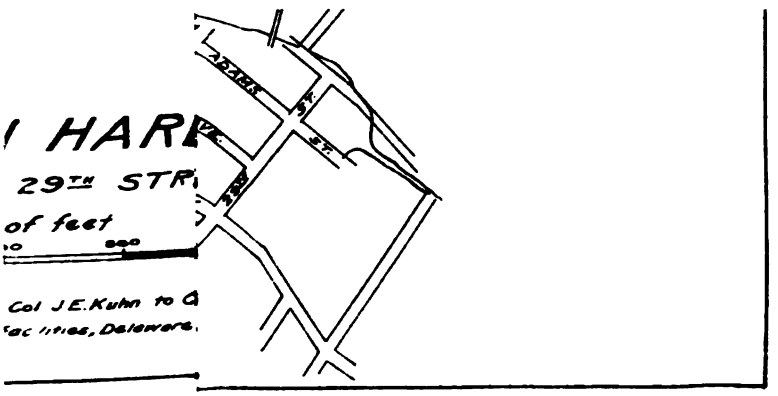

(*b*) These terminals have no direct physical connection with any railroad, but there is a track of the Pennsylvania Railroad Co. near by in the shipyard. There is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

XXIII. PHILADELPHIA, PA.

Piers Nos. 1, 2, and 3 north, between Market and Arch Streets.—(*a*) Pier No. 1 is a pile and timber structure, covered almost its entire length. It has no freight-handling equipment. Length, 454 feet; width at pierhead, 99 feet 9 inches. Depth of water at pierhead, 30 feet at mean low water; alongside, north side, 18 feet; south side, 12 feet.

Pier No. 2 is a pile and timber structure, covered almost its entire length. It has no freight-handling equipment. Length, 443 feet; width at pierhead 83 feet. Depth of water at pierhead, 30 feet at mean low water; alongside, 20 feet.

Pier No. 3 is a pile and timber structure, covered almost its entire length. It has no freight-handling equipment. Length, upper side, 440 feet; lower side, 542 feet; width at pierhead, 88 feet. Depth of water at pierhead, 30 feet at mean low water; alongside, north side, 18 feet; south side, 20 feet.

These piers are all owned or leased by the Clyde Steamship Co., which is engaged in the freight and passenger service, trading principally with New York and southern ports. They are adequate for present requirements. The aggregate yearly tonnage amounts to about 578,510 tons, chiefly lumber, hides, skins, cotton, and general merchandise, carried in steamers. The terminals are not open to other water carriers.

(*b*) The terminals have no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 4 north, at the foot of Arch Street.—(*a*) This is a pile and steel structure, covered almost its entire length. It has no freight-handling equipment. Length, 530 feet; width at pierhead, 80 feet. Depth of water at pierhead, 30 feet at mean low water; alongside, north side, 21 feet; south side, 23 feet. The pier is owned by the municipality and leased to a number of river transportation companies engaged in the passenger and freight service. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 1,150,000 tons, chiefly farm produce, fertilizer, hides, skins, lumber, and general merchandise, carried in steamboats and small river packets. The terminal is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

Pier No. 5 north, at the foot of Appletree Street.—(*a*) This is a pile and timber structure, covered almost its entire length. It has no

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

freight-handling equipment. Length, 540 feet; width at pierhead, 71 feet. Depth of water at pierhead, 32 feet at mean low water; alongside, north side, 20 feet; south side, 24 feet. The pier is owned by the United Fruit Co., which is engaged in the freight and passenger service between Philadelphia and the Tropics. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 175,000 tons, chiefly fruits, nuts, and general merchandise, carried in steamers. The terminal is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 8 north, between Cherry and Race Streets.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 162 feet; width at pierhead, 87 feet. Depth of water at pierhead, 23 feet at mean low water; alongside, north side, 20 feet; south side, 24 feet. The pier is owned by the Lehigh Valley Railroad Co. and leased to a river transportation company and the Sun Oil Co. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 225,000 tons, chiefly oil, farm produce, fertilizers, and general merchandise, carried in steamboats and barges. The terminal is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 10 north, at the foot of Race Street.—(*a*) This is a pile and steel structure, covered almost its entire length, with an upper deck used partly for recreation purposes and partly for the storage of freight. It has no freight-handling equipment. Length, 539 feet; width at pierhead, 80 feet. Depth of water at pierhead, 34 feet at mean low water; alongside, north side, 24 feet; south side, 28 feet. The pier is owned by the municipality. The north side is used by the city as berths for police and fire boats; the south side is leased to the Cuneo Importing Co., engaged in the freight service. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 383,000 tons, chiefly tropical fruits, salt, and general merchandise, carried in steamers. The terminal is not open to other water carriers.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad, the Philadelphia & Reading Railway, and the Baltimore & Ohio Railroad Cos., via the Philadelphia Belt Line, but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 11 and 12 north, between Race and Summer Streets.—(*a*) Pier No. 11 is a pile and timber structure, covered almost its entire length. It has no freight-handling equipment. Length, 540 feet; width at pierhead, 59 feet. Depth of water at pierhead, 30 feet at mean low water; alongside, north side, 16 feet; south side, 24 feet.

Pier No. 12 is a pile and timber structure, covered almost its entire length. It has no freight-handling equipment. Length, 540

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

feet; width at pierhead, 71 feet. Depth of water at pierhead, 30 feet at mean low water; alongside, 16 feet.

Pier No. 11 is owned by the municipality and pier No. 12 by an estate. They are leased to the Baltimore & Ohio Railroad Co. and used exclusively as a city freight station. The principal service to and from this station is by car floats. The aggregate yearly tonnage amounts to about 550,000 tons, chiefly general merchandise, which is carried in railroad cars on car floats. The terminals are open to all water carriers, and no wharfage is charged, provided a reasonable amount of the vessel's cargo is moved via the Baltimore & Ohio Railroad.

(*b*) The terminals have no direct physical connection with any railroad, and no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Piers Nos. 13 and 14 north, between Winter and Vine Streets.—(*a*) Pier No. 13 is a pile and timber structure, covered almost its entire length. It has no freight-handling equipment. Length, 305 feet; width at pierhead, 152 feet. Depth of water at pierhead, 14 feet at mean low water; alongside, 14 feet.

Pier No. 14 is a pile and timber structure, covered almost its entire length. It has no freight-handling equipment. Length, 305 feet; width at pierhead, 81 feet. Depth of water at pierhead, 14 feet at mean low water; alongside, 14 feet.

These two piers are joined together and used by the Pennsylvania Railroad Co. as a city freight station. The water service to and from this station is carried on by car floats and no other vessels discharge or load at the piers. They are adequate for present requirements. The aggregate yearly tonnage amounts to about 1,800,000 tons, consisting of general merchandise, which is carried in railroad cars on car floats.

(*b*) The terminals have direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 19 north, between Vine and Callowhill Streets.—(*a*) This is a double-decked pier, with a substructure of pile and concrete and a steel superstructure. It has no freight-handling equipment. Length, 571 feet; width at pierhead, 166 feet. Depth of water at pierhead, 40 feet at mean low water; alongside, north side, 28 feet; south side 32 feet. The pier is owned by the municipality and leased to the Philadelphia & Gulf Steamship Co. and the Italia Line, engaged in the passenger and freight service to southern and foreign ports, respectively. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 300,000 tons, chiefly lumber, naval stores, cotton, flour, and general merchandise, carried in steamers. The terminal is not open to other water carriers.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad, the Philadelphia & Reading Railway, and the Baltimore & Ohio Railroad Companies via the Philadelphia Belt

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Line. There is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Property of the Philadelphia & Reading Railway Co. between Callowhill and Green Streets, described as follows:

Pier No. 24 north, between Callowhill and Willow Streets.—(*a*) This is a pile and timber structure, covered almost its entire length. It is equipped with three hand cranes of 5,000 pounds capacity for handling freight. Length, 570 feet; width at pierhead, 150 feet. Depth of water at pierhead, 40 feet at mean low water; alongside, north side, 25 feet; south side, 26 feet. This pier is used primarily for handling freight to and from Allan Line steamers, carrying general import and export cargoes, but freight to and from other steamers is also handled when it can be done without conflicting with the regular line steamers. The aggregate yearly tonnage amounts to about 187,000 tons, consisting of general merchandise, which is carried in steamers.

Pier No. 25 north, at the foot of Willow Street.—(*a*) This pier is built with a pile and stone substructure and a timber superstructure, and is covered almost its entire length. It is equipped with one hand crane of 500 pounds capacity and one lift block of 6,000 pounds capacity, for handling freight. Length, upper side, 593 feet 9 inches; lower side, 592 feet 3 inches; width at pierhead, 102 feet. Depth of water at pierhead, 44 feet at mean low water; alongside, 26 feet. This pier is used primarily for handling import cargoes from steamers of the trans-Atlantic and Furness Lines. Other steamers berth at the pier provided it can be done without conflicting with regular line steamers. The aggregate yearly tonnage amounts to about 70,000 tons, consisting of general merchandise, which is carried in steamers.

Pier No. 27 north, between Willow and Noble Streets.—(*a*) This is a double-decked pier, with a pile and concrete substructure and a timber superstructure, covered almost its entire length. It has no freight-handling equipment. Length, upper side 535 feet 4 inches; lower side, 334 feet; width at pierhead, 150 feet. Depth of water at pierhead, 44 feet at mean low water; alongside, north side, 23 feet; south side, 28 feet. This pier is used primarily for handling import cargoes from the Holland-American and Scandinavian Lines. Freight to and from other lines is also handled when it can be done without conflicting with the regular line steamers. The aggregate yearly tonnage amounts to about 100,000 tons, chiefly oil, scrap iron, and general merchandise, which is carried in steamers.

Pier No. 29 north, at the foot of Noble Street.—(*a*) This is a pile and timber structure, and has no freight-handling equipment. Length, 123 feet; width at pierhead, 77 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 7 feet. The pier space is used principally as a car-float delivery yard, but occasionally small river craft load and unload freight to and from cars. The aggregate yearly tonnage amounts to about 400 tons, chiefly manure and fertilizer, which is carried in small sailing vessels and barges.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Pier No. 30 north, between Noble and Green Streets.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 159 feet; width at pierhead, 89 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 to 0 feet. The pier is not used by water craft. It is used exclusively as a city freight yard where freight is loaded and unloaded from cars.

The above piers are adequate for present requirements. They are open to all water carriers, and no wharfage is charged provided a reasonable amount of the vessel's cargo is moved in connection with the Philadelphia & Reading Railway.

(*b*) With the exception of pier No. 30 all the terminals have direct physical connection with the Philadelphia & Reading Railway Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 31 north, between Noble and Green Streets.—(*a*) This is a pile and timber structure, covered almost its entire length. It has no freight-handling equipment. Length, upper side 205 feet, lower side, 399½ feet; width at pierhead, 80 feet. Depth of water at pierhead, 8 feet at mean low water; alongside, north side 7 feet, south side, 6 feet. The pier is leased by the Terminal Warehouse & Transfer Co., and used in connection with its business. The aggregate yearly tonnage amounts to about 2,144 tons of salt, which is carried in barges and lighters. The pier is adequate for present requirements. The terminal is open to other water carriers on payment of wharfage.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad and the Philadelphia & Reading Railway companies, but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 32 north, at the foot of Green Street.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, upper side 180 feet, lower side 310 feet; width at pierhead, 51 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, 11 feet. The pier is owned by the municipality, and leased to George W. Kugler & Son, who use it in connection with a packing-box factory. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 5,547 tons, chiefly lumber, ties, and box boards. The terminal is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 33 and 34 north, between Green Street and Fairmount Avenue.—(*a*) These are pile and concrete structures joined together, and are equipped with an electric sand-drying plant and unloader. Length, upper side, 813 feet; lower side, 472 feet; width at pierhead, 123 feet. Depth of water at pierhead, 24 feet at mean low water;

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

alongside, north side, 21 feet; south side, 13 feet. The piers are owned by the Peoples Passenger Railroad Co. and leased to the Philadelphia Rapid Transit Co., and are used in connection with their plant. In addition a number of small sailing vessels and barges load and unload cargo at the piers. The piers are adequate for present requirements. The aggregate yearly tonnage amounts to about 12,000 tons, chiefly lumber, posts, ties, stone, paving blocks, and sand, which is carried in sailing vessels, barges, and canal boats. The terminal is open to other water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 35 north, at the foot of Fairmount Avenue.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, upper side, 405 feet; lower side, 414 feet; width at pierhead, 44 feet 8 inches. Depth of water at pierhead, 18 feet at mean low water; alongside, north side, 12 feet; south side, 16 feet. The pier is owned by the municipality and leased to Carnwath, Bell & Co., and is used in connection with a packing-box factory. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 12,264 tons, chiefly lumber, ties, and mine props, which is carried in sailing vessels, barges, and canal boats. The terminal is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 35½ north, between Fairmont Avenue and Canal Street.—(*a*) This is a timber-crib earth-filled structure, covered almost its entire length. It has no freight-handling equipment. Length, upper side, 573 feet 9 inches; lower side, 568 feet; width at pierhead, 68 feet. Depth of water at pierhead, 21 feet at mean low water; alongside, north side, 16 feet; south side, 13 feet. The pier is owned by the estate of Thomas H. Powers and leased to the American Ice Co. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 8,560 tons, chiefly fruits, salt, ties, and miscellaneous articles, which is carried in steamers, sailing vessels, barges, and canal boats. The terminal is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 36 north, between Canal and Poplar Streets.—(*a*) This is a timber-crib earth-filled structure, with a frame building at the shore end. It has no freight-handling equipment. Length, upper side, 389 feet; lower side, 577 feet 5 inches; width at pierhead, 68 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, north side, 12 feet; south side, 16 feet. The pier is owned by the estate of Thomas H. Powers and leased to Charles Felin & Co.,

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

and is used in connection with a lumber yard. It is adequate for present requirements. The yearly tonnage amounts to about 7,915 tons of lumber, which is carried in sailing vessels and lighters. The terminal is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(c) There is a good roadway leading from the terminal.

Piers Nos. 37 and 38 north, between Poplar and Laurel Streets.—(*a*) Pier No. 37 is a timber crib, earth-filled structure, and has no freight-handling equipment. Length, upper side 188 feet 9 inches, lower side 373 feet; width at pierhead, 57 feet 3 inches. Depth of water at pierhead, 10 feet at mean low water; alongside, north side 9 feet, south side 12 feet.

Pier No. 38 is a timber-crib earth-filled structure, partly covered at the inner end. It is equipped with an electric crane for handling freight. Length, upper side 528 feet, lower side 336 feet; width at pierhead, 75 feet 7 inches. Depth of water at pierhead, 20 feet at mean low water; alongside, north side 7 feet, south side 11 feet.

These two piers are leased and used in connection with the lumber yard of Edward Henson & Co., and are adequate for present requirements. The aggregate yearly tonnage amounts to about 40,000 tons, chiefly lumber and laths, which is carried in sailing vessels, barges, and canal boats. They are private terminals, and are not open to water carriers generally.

(*b*) The terminals have direct physical connection with the Pennsylvania Railroad Co., but no arrangement exists for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 39 north, between Poplar and Laurel Streets.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, upper side 102 feet, lower side 219 feet; width at pierhead, 48 feet. Depth of water at pierhead, 3 feet at mean low water; alongside, 3 feet. The pier is owned by Clayton W. Nichols, and is used in connection with a packing-box factory. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 4,100 tons, chiefly lumber and pulp wood, which is carried in small sailing vessels, barges, and canal boats. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 40 north, between Poplar and Laurel Streets.—(*a*) This is a timber-crib earth-filled structure, partly covered at the outer end by a frame building. It has no freight-handling equipment. Length, upper side 472 feet, lower side 446 feet; width at pierhead, 63 feet 8 inches. Depth of water at pierhead, 30 feet at mean low water; alongside, north side 12 feet, south side 18 feet. The pier is owned by the Terminal Land Co. and leased to the Baltimore & Ohio Rail-

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.

road Co. It is used exclusively as a freight station. The service to and from the pier is principally by car floats. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 150,000 tons, consisting of general merchandise, which is carried in cars on car floats. The terminal is open to other water carriers on payment of wharfage.

(*b*) The terminal has direct physical connection with the Baltimore & Ohio Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 41 north, between Poplar and Laurel Streets.—(*a*) This is a crib, earth-filled structure, equipped with two electric cranes and a "Dodge" coal device for handling freight. Length, upper side 192 feet 4 inches, lower side 150 feet; width at pierhead, 36 feet 11 inches. Depth of water at pierhead, 16 feet at mean low water; alongside, north side 5 feet, south side 16 feet. It is adequate for present requirements. The pier is owned by the Electric Traction Co. and leased to the Philadelphia Rapid Transit Co. It is used exclusively to receive materials for the use of the company. The aggregate yearly tonnage amounts to about 122,500 tons, chiefly sand and coal, which is carried in barges and canal boats. The terminal is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 42 north, between Poplar and Laurel Streets.—(*a*) This is a pile and timber structure, partly covered by a timber shed at the inner end. It has no freight-handling equipment. Length, 530 feet; width at pierhead, 70 feet. Depth of water at pierhead, 31 feet at mean low water; alongside, north side, no dock; south side, 12 feet. The pier is owned by the estate of William Taylor, and leased to Charles Felin & Co., who use it in connection with their lumberyard It is adequate for present requirements. The aggregate yearly tonnage amounts to about 10,400 tons, chiefly lumber, laths, and mine props, which is carried in steamers, sailing vessels, and barges. The terminal is open to all water carriers on payment of wharfage.

(*b*) The terminal has physical connection with the Pennsylvania Railroad and the Philadelphia & Reading Railway Cos.' but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 43 north, near the foot of Laurel Street, south side.—(*a*) This is a timber-crib earth-filled structure, equipped with a steam crane of 20 tons' capacity for handling freight. Length, 436 feet 6 inches; width at pierhead, 60 feet. Depth of water at pierhead, 31 feet at mean low water; alongside, north side, 11 feet; south side, no dock. The pier is owned by the Reading Co. and leased to the Philadelphia & Reading Railway Co., and is adequate for present requirements. It is used by the railway company as a city freight station for carload freight, in addition to freight received by water. The

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

aggregate yearly tonnage amounts to about 50,000 tons, chiefly lumber, sand, stone, and miscellaneous commodities. The terminal is open to all water carriers, and no wharfage is charged, provided a reasonable amount of the vessel's cargo is moved via the Philadelphia & Reading Railway.

(*b*) The terminal has direct physical connection with the Philadelphia & Reading Railway Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 44 north, between Laurel and Shackamaxon Streets.—(*a*) This is a crib and open-pile structure, with a timber shed on the outer end. It is equipped with two electric derricks for handling freight. Length, upper side, 540 feet; lower side, 579 feet; width at pierhead, 55 feet. Depth of water at pierhead, 35 feet at mean low water; alongside, north side, 13 feet; south side, 10 feet. The pier is owned by Edward B. Malone and leased to Watson Malone & Sons. It is used in connection with a lumberyard. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 17,500 tons, chiefly lumber, shingles, and box boards, which is carried in sailing vessels, barges, and canal boats. The terminal is open to all water carriers on payment of wharfage.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 45 north, between Laurel and Shackamaxon Streets.—(*a*) This is a timber-crib earth-filled structure, equipped with four steam derricks for handling freight. Length 342 feet; width at pierhead, 37 feet 6 inches. Depth of water at pierhead, 12 feet at mean low water; alongside, north side, 22 feet; south side, 12 feet. The pier is owned by J. W Paxson Co., and used in connection with their business as dealers in sand and gravel. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 360,000 tons, chiefly sand, gravel, and plaster, which is carried in small sailing vessels, barges, and canal boats. The terminal is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 46 north, between Laurel and Shackamaxon Streets.—(*a*) This pier has a timber crib substructure and timber superstructure, and is covered its entire length. It is equipped with two electric cranes for handling freight. Length, upper side, 557 feet; lower side, 383 feet; width at pierhead, 73 feet. Depth of water at pierhead, 29 feet at mean low water; alongside, north side, 20 feet; south side, 24 feet. The pier is owned by the Pennsylvania Sugar Refining Co., and is used in connection with its refining plant. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 122,500 tons of sugar, which is carried in steamers, sailing

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

vessels, and barges. The terminal is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 47 north, between Laurel and Shackamaxon Streets.—(*a*) This is a timber-crib earth-filled structure, equipped with two steam derricks for handling freight. Length, upper side, 231 feet; lower side, 221 feet; width at pierhead, 61 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 11 feet. The pier is owned by the Pennsylvania Sugar Refining Co., and leased to George W. Gormley, who uses it in connection with his business as a dealer in sand and gravel. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 180,000 tons, chiefly sand, gravel, and fertilizers, which is carried in sailing vessels, barges, and canal boats.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 48 north, between Laurel and Shackamaxon Streets.—(*a*) This is a timber-crib earth-filled structure and has no freight-handling equipment. Length, upper side, a ferry slip; lower side, 335 feet; width at pierhead, 38 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 10 feet. The pier is owned by the Pennsylvania Railroad Co., and is adequate for present requirements. It is used as a freight yard for carload freight in addition to freight received by water. The aggregate yearly tonnage amounts to about 6,354 tons, chiefly lumber, laths, and phosphate rock, which is carried in sailing vessels, barges, and canal boats. The terminal is open to all water carriers, and no wharfage is charged, provided a reasonable amount of the vessel's cargo is moved in connection with the Pennsylvania Railroad.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 49 and 50 north, between Shackamaxon and Marlborough Streets.—(*a*) These piers are pile and timber structures joined together, and have no freight-handling equipment. Length, upper side, 532 feet 7 inches; lower side, 628 feet; width at pierhead, 160 feet. Depth of water at pierhead, 30 feet at mean low water; alongside, north side, 22 feet; south side, 11 feet. The piers are owned by the Pennsylvania Railroad Co., and are adequate for present requirements. They are used by the railroad company as a freight yard in addition to freight received by water. The aggregate yearly tonnage amounts to about 1,500 tons, chiefly laths and lumber, which is carried in sailing vessels and barges. The terminals are open to all water carriers, and no wharfage is charged provided a reasonable

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

amount of the vessel's cargo is moved in connection with the Pennsylvania Railroad.

(*b*) The terminals have direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 51 north, between Shackamaxon and Marlborough Streets.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, upper side, 293 feet; lower side, 303 feet; width at pierhead, 42 feet. Depth of water at pierhead, 9 feet at mean low water; alongside, 12 feet. The pier is owned by S. B. Vrooman and used by him in connection with a lumber yard. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 10,000 tons of lumber, which is carried in sailing vessels and barges. The terminal is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 52 north, between Shackamaxon and Marlborough Streets.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, upper side, 510 feet; lower side, 322 feet; width at pierhead, 58 feet. Depth of water at pierhead, 9 feet at mean low water; alongside, north side, 6 feet; south side, 12 feet. The pier is owned by Joseph W. Janney, and is used by the owner in connection with a lumber yard. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 12,000 tons of lumber, which is carried in sailing vessels and barges. The terminal is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 53 north, between Shackamaxon and Marlborough Streets.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, upper side, 276 feet; lower side, 343 feet 3 inches; width at pierhead, 52 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, north side, 8 feet; south side, 3 feet. The pier is owned by Frank Merrihew. It is used jointly by the owner and Thomas B. Hammer as a coal and lumber yard, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 18,000 tons, chiefly lumber and coal, which is carried in barges and canal boats. The terminal is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Pier No. 54 north, between Marlborough Street and East Columbia Avenue.—(*a*) This is a timber-crib earth-filled structure, partly covered by a frame building. It is equipped with steam derricks for handling freight. Length, upper side, 145 feet; lower side, 176 feet; width at pierhead, 93 feet. Depth of water at pierhead, 8 feet at mean low water; alongside, north side, 7 feet; south side, 8 feet. The pier is owned by the American Sheet & Tinplate Co., and leased to the General Chemical Co. It is used in connection with a chemical plant, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 18,000 tons of chemicals, which is carried in barges and lighters. The terminal is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 55 north, between Marlborough Street and East Columbia Avenue.—(*a*) This is a timber-crib earth-filled structure, equipped with steam winches. Length, upper side, 320 feet; lower side, 360 feet; width at pierhead, 75 feet. Depth of water at pierhead, 14 feet at mean low water; alongside, 14 feet. The pier is owned by the American Ice Co., and is used in connection with its ice plant. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 6,000 tons of ice and lumber, which is carried in sailing vessels and barges. The terminal is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 56 north, between Marlborough Street and East Columbia Avenue.—(*a*) This is a timber-crib earth-filled structure, equipped with a steam winch for handling freight. Length, upper side, 325 feet; lower side, 300 feet; width at pierhead, 52 feet. Depth of water at pierhead, 17 feet at mean low water; alongside, north side, 17 feet; south side, 14 feet. The pier is owned by Charles Lennig & Co., and used in connection with their plant. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 3,000 tons, chiefly stone, paving blocks, ice, ties, and lumber, which is carried in sailing vessels, barges, and canal boats. The terminal is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 57 and 58 north, between East Columbia Avenue and Palmer Street.—(*a*) These piers are crib earth-filled structures, and have no freight-handling equipment. Length, upper side, 100 feet; lower side, 150 feet; width at pierhead, 158 feet. Depth of water at pierhead, 9 feet at mean low water; alongside, 15 feet. The piers

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

are owned by the municipality and used as berths for city police boats. No commerce passes over these piers.

(*b*) The terminals have no direct physical connection with any railroad.

(*c*) There is a good roadway leading from each terminal.

Piers Nos. 59, 60, and 61 north, between East Columbia Avenue and Palmer Street.—(*a*) Pier No. 59 is a pile and timber structure and has no freight-handling equipment. Length, upper side, 100 feet; lower side, 180 feet; width at pierhead, 20 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, 6 feet.

Pier No. 60 is a timber-crib earth-filled structure and has no freight-handling equipment. Length, upper side, 437 feet; lower side, 248 feet; width at pierhead, 51 feet. Depth of water at pierhead, 25 feet at mean low water; alongside, north side, 18 feet; south side, 12 feet.

Pier No. 61 is a timber-crib earth-filled structure and has no freight-handling equipment. Length, upper side, 490 feet; lower side 297 feet; width at pierhead, 46 feet. Depth of water at pierhead, 18 feet at mean low water; alongside, 18 feet.

The piers are owned by John A. Harris, jr., and leased to Frank C. Sommers, and are used in connection with a lumber yard. The piers are adequate for present requirements. The aggregate yearly tonnage amounts to about 35,000 tons of lumber and laths, which is carried in sailing vessels, barges, and canal boats. The terminals are open to all water carriers on payment of wharfage.

(*b*) Pier No. 60 only has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 61½ north, at the foot of Palmer Street.—(*a*) This is a timber-crib earth-filled structure and has no freight-handling equipment. Length, 282 feet; width at pierhead, 40 feet. The pier is owned by the municipality and is being rebuilt. No commerce passes over the terminal.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 62, 63, 64, and 65 north, between Palmer Street and Montgomery Avenue.—(*a*) Pier No. 62 is a timber-crib earth-filled structure, equipped with steam derricks for handling freight. Length, upper side, 277 feet; lower side, 282 feet; width at pierhead, 84 feet. Depth of water at pierhead, 30 feet at mean low water; alongside, north side, 20 feet; south side, 14 feet.

Pier No. 63 is a timber-crib earth-filled structure, equipped with a steam derrick for handling freight. Length, 275 feet; width at pierhead, 20 feet; depth of water at pierhead, 20 feet at mean low water; alongside, 15 feet.

Pier No. 64 is a pile and timber structure, equipped with steam derricks for handling freight. Length, upper side, 54 feet; lower

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

side, 190 feet; width at pierhead, 10 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 to 0 feet.

Pier No. 65 is a timber-crib earth-filled structure, equipped with steam derricks and shear legs for handling freight. Length, upper side, 300 feet; lower side, 365 feet; width at pierhead, 42 feet. Depth of water at pierhead, 26 feet at mean low water; alongside, north side, 12 feet; south side, 18 feet.

The piers are owned by the Wm. Cramp & Sons Ship & Engine Building Co. and the Kensington Shipyard Co. They are operated in connection with a ship-repair plant and are adequate for present requirements. There is no commerce over the terminals.

(*b*) Pier No. 65 only has direct physical connection with the Pennsylvania Railroad Co.

(*c*) There is a good roadway leading from each terminal.

Pier No. 66 north, between Montgomery Avenue and Berks Street.—(*a*) This pier has a crib substructure, with steel superstructure, and has no freight-handling equipment. Length, upper side, 251 feet; lower side, 141 feet; width at pierhead, 190 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, 12 feet. The pier is owned by Hughes & Patterson and used in connection with their plant. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 275 tons of stone, carried in barges. The terminal is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad, but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 67 north, at the foot of Berks Street.—(*a*) This is a timber-crib earth-filled structure, partly covered by a concrete building, and equipped with three electric cranes for handling freight. Length, upper side, 452 feet 3 inches; lower side, 448 feet 6 inches; width at pierhead, 65 feet. Depth of water at pierhead, 26 feet at mean low water; alongside, north side, 20 feet; south side, 12 feet. The pier is owned by the DeFrain Sand Co. and used by the owner and the Hainesport Mining & Transportation Co., both dealers in sand and gravel. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 817,000 tons of stone, sand, and gravel, which is carried in sailing vessels, barges, and lighters. The terminal is not open to other water carriers.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad, but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 69 north, between Berks Street and Susquehanna Avenue.—(*a*) This is a timber-crib earth-filled structure, equipped with a steam derrick for handling freight. Length, upper side, 392 feet 3 inches; lower side, 469 feet 3 inches; width at pierhead, 81 feet. Depth of water at pierhead, 27 feet at mean low water; alongside, north side, 20 feet; south side, 16 feet. The pier is owned by William M. Lloyd, and used by the owner as a lumber yard. It is adequate

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

for present requirements. The aggregate yearly tonnage amounts to about 15,000 tons of lumber and laths, which is carried in sailing vessels and barges. The terminal is open to all water carriers on payment of wharfage.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad, but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 70 north, at the foot of Susquehanna Avenue.—(*a*) This is a crib earth-filled structure, partly covered at the outer end by a recreation pavilion. It has no freight-handling equipment. Length, 274 feet; width at pierhead, 50 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, south side, 9 feet; north side, no dock. The pier is owned by the municipality and is principally used for a recreation pier during the summer. No commerce passes over the terminal.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

Pier No. 71 north, between Susquehanna Avenue and Dyott Street.—(*a*) This is a timber-crib earth-filled structure, equipped with a steam winch for handling freight. Length, 288 feet; width at pierhead, 151 feet 6 inches. Depth of water at pierhead, 12 feet at mean low water; alongside, north side, 8 feet; south side, no dock. The pier is owned by Hughes Bros. and used as a lumber yard. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 5,000 tons, chiefly lumber, stone, and paving blocks, which is carried in sailing vessels, barges, and lighters. The terminal is open to all water carriers on payment of wharfage.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 72 north, between Susquehanna Avenue and Dyott Street.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, upper side, 255 feet; lower side, 283 feet 6 inches; width at pierhead, 80 feet. Depth of water at pierhead, 14 feet at mean low water; alongside, north side, 17 feet; south side, 8 feet. The pier is owned by Hughes Bros. and a portion is leased to the DeFrain Sand Co. It is used jointly by the owner and the sand company. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 800 tons of paving blocks, which is carried in barges and lighters. The terminal is open to all water carriers on payment of wharfage.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 75 and 76 north, between Dyott and Norris Streets.—(*a*) Pier No. 75 is a timber-crib earth-filled structure, with concrete coal pockets, and equipped with electric cranes and overhead coal

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

conveyors. Length, upper side, 132 feet; lower side, 140 feet; width at pierhead, 138 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, north side, 12 feet; south side, 17 feet.

Pier No. 76 is a timber-crib earth-filled structure, equipped with electric cranes and overhead coal conveyors. Length, upper side, 80 feet; lower side, 90 feet; width at pierhead, 65 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet.

The piers are owned by the Lehigh Coal & Navigation Co., and used in connection with its coal-storage plant. The piers are adequate for present requirements. The aggregate yearly tonnage amounts to about 350,000 tons of coal, carried in canal boats. The terminal is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Property of the Wm. Cramp & Sons Ship and Engine Building Co., lying between Dyott and Cumberland Streets, described as follows: (*a*) Pier No. 77 north is an open timber-crib structure, equipped with a traveling crane for handling materials. Length, upper side, 75 feet; lower side, 220 feet; width at pierhead, 35 feet. Depth of water at pierhead, 12 feet at mean low water.

Pier No. 78 north is an open timber-crib structure, equipped with a traveling crane for handling materials. Length, 75 feet; width at pierhead, 28 feet. Depth of water at pierhead, 12 feet at mean low water.

Pier No. 79 north is an open timber-crib structure, equipped with a traveling crane for handling materials. Length, upper side, 245 feet; lower side, 75 feet; width at pierhead, 25 feet. Depth of water at pierhead, 12 feet at mean low water.

Pier No. 80 north is a timber-crib earth-filled structure, equipped with a steam derrick for handling materials. Length, upper side, 520 feet; lower side, 471 feet; width at pierhead, 74 feet. Depth of water at pierhead, 32 feet at mean low water; alongside, 18 feet.

Pier No. 81 north is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, upper side, 150 feet; lower side, 265 feet; width at pierhead, 60 feet 10 inches. Depth of water at pierhead, 12 feet at mean low water.

Pier No. 82 north is a timber-crib earth-filled structure, equipped with an electric winch for handling materials. Length, upper side, 40 feet; lower side, 170 feet; width at pierhead, 72 feet. Depth of water at pierhead, 12 feet at mean low water.

Pier No. 83 north is a timber-crib earth-filled structure, equipped with a traveling crane for handling materials. Length, 72 feet; width at pierhead, 29 feet. Depth of water at pierhead, 12 feet at mean low water.

Pier No. 85 north is a timber-crib earth-filled structure, equipped with a traveling crane for handling materials. Length, 110 feet; width at pierhead, 10 feet. Depth of water at pierhead, 12 feet at mean low water.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Pier No. 86 north is a timber-crib earth-filled structure, equipped with a steam derrick for handling materials. Length, upper side, 578 feet; lower side, 120 feet; width at pierhead, 73 feet. Depth of water at pierhead, 25 feet at mean low water; alongside, north side, 26 feet; south side, no dock.

Pier No. 20, Port Richmond, is a timber-crib earth-filled structure, equipped with a steam winch for handling materials. Length, upper side, 690 feet; lower side, 900 feet; width at pierhead, 66 feet. Depth of water at pierhead, 28 feet at mean low water; alongside, north side, 10 feet; south side, 28 feet.

These piers are all used in connection with the Cramp shipbuilding plant, and are adequate for present requirements. No commerce passes over the terminals.

(*b*) All the terminals, with the exception of piers Nos. 78, 83, and 85, have direct physical connection with the Pennsylvania Railroad Co.

(*c*) There is a good roadway leading from each terminal.

Property of the Philadelphia & Reading Railway Co. lying between Cumberland Street and Allegheny Avenue, described as follows:

Pier No. 18, Port Richmond.—(*a*) This is a crib and concrete structure on piles, and is equipped with trestle and coal chutes. Length, upper side, 790 feet; lower side, 410 feet; width at pierhead, 40 feet. Depth of water at pierhead, 18 feet at mean low water; alongside, 18 feet. This pier is used exclusively for loading coal into vessels. The aggregate yearly tonnage amounts to about 190,000 tons of coal, which is carried in steamers, sailing vessels, barges, and canal boats.

Pier No. 16, Port Richmond.—(*a*) This is a timber-crib structure, equipped with trestle and coal chutes. Length, upper side, 445 feet; lower side, 717 feet; width at pierhead, 56 feet. Depth of water at pierhead, 15 feet at mean low water; alongside, 15 feet. This pier is used exclusively for loading coal into vessels. The aggregate yearly tonnage amounts to about 800,000 tons of coal, which is carried in steamers, sailing vessels, barges, and canal boats.

Pier No. 14, Port Richmond.—(*a*) This is a pile and concrete structure, with timber trestle, and is equipped with two ore unloading machines and steam derricks. Length, 774 feet; width at pierhead, 71 feet 6 inches. Depth of water at pierhead, 27 feet at mean low water; alongside, 20 feet. This pier is used for unloading vessels with iron ore destined for points located on or reached via the Philadelphia & Reading Railway. The aggregate yearly tonnage amounts to about 735,000 tons of iron ore, which is carried in ocean steamers and barges.

Pier No. 13, Port Richmond.—(*a*) This is a timber-crib structure, with a trestle, and is equipped with steam derricks for handling freight. Length, upper side, 493 feet; lower side, 390 feet; width at pierhead, 80 feet. Depth of water at pierhead, 18 feet at mean low water; alongside, 18 feet. This pier is used exclusively for unloading vessels with iron ore destined for points located on or reached

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

via the Philadelphia & Reading Railway. The aggregate yearly tonnage amounts to about 125,000 tons of iron ore, which is carried in steamers, sailing vessels, and barges.

Pier No. 12, Port Richmond.—(*a*) This is a timber-crib structure, with trestle and coal chutes. Length, 200 feet; width at pierhead, 48 feet 2 inches. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 feet. This pier is used to supply tugs and small river craft with bunker coal. The aggregate yearly tonnage amounts to about 6,000 tons of coal.

Pier No. 11, Port Richmond.—(*a*) This is a timber-crib structure, with trestle and coal chutes. Length, 709 feet 6 inches; width at pierhead, 81 feet. Depth of water at pierhead, 24 feet at mean low water; alongside, 20 feet. This pier is used exclusively for loading coal into vessels. The aggregate yearly tonnage amounts to about 2,000,000 tons of coal, which is carried in sailing vessels, barges, and river craft.

Pier No. 10, Port Richmond.—(*a*) This is a timber-crib structure, with trestle and coal chutes. Length, upper side, 250 feet; lower side, 198 feet; width at pierhead, 50 feet. Depth of water at pierhead, 9 feet at mean low water; alongside, 9 feet. This pier is used exclusively for loading coal into vessels. The aggregate yearly tonnage amounts to about 100,000 tons of coal, which is carried in steamers, sailing vessels, and barges.

Pier No. 9, Port Richmond.—(*a*) This is a timber-crib structure with trestle and coal chutes. Length, upper side, 200 feet; lower side, 535 feet; width at pierhead, 38 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 feet. This pier is used exclusively for supplying bunker coal to tugs and small river craft. The aggregate yearly tonnage amounts to about 50,000 tons of coal.

Pier No. 8, Port Richmond.—(*a*) This is a timber-crib structure with trestle and coal chutes. Length, 356 feet, 6 inches; width at pierhead, 29 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 feet. This pier is used exclusively for loading coal into vessels. The aggregate yearly tonnage amounts to about 380,000 tons of coal, which is carried in steamers, sailing vessels, barges, and river craft.

Pier No. 7, Port Richmond.—(*a*) This is a timber-crib earth-filled structure and has no freight-handling equipment. Length, 360 feet; width at pierhead, 35 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 feet. This pier is used exclusively for handling construction material to be used by the railway company. The aggregate yearly tonnage amounts to about 7,000 tons of construction material, which is carried in barges.

Pier No. 6, Port Richmond.—(*a*) This is a timber-crib earth-filled structure and has no freight-handling equipment. Length, 356 feet 6 inches; width at pierhead, 28 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 feet. This pier is used exclusively for handling construction material to be used by the railway company. The aggregate yearly tonnage amounts to about 4,000 tons of construction material, which is carried in barges.

Pier No. 5, Port Richmond.—(*a*) This is a timber-crib earth-filled structure and has no freight-handling equipment. Length, 235 feet;

(*a*) General location and description.

width at pierhead, 33 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 feet. No commerce passes over this pier. It is used exclusively for the storage of construction material to be used by the railway company.

Pier No. 4, Port Richmond.—(*a*) This is a timber-crib structure with trestle and coal chutes. Length, 255 feet; width at pierhead, 29 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 feet. This pier is used exclusively for loading coal into vessels. The aggregate yearly tonnage amounts to about 70,000 tons of coal, which is carried in small river craft.

Pier No. 3, Port Richmond.—(*a*) This is a timber-crib earth-filled structure and has no freight-handling equipment. Length, 185 feet; width at pierhead, 30 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 feet. No commerce passes over this pier. It is used exclusively for repairing and overhauling the railway company's sea and harbor floating equipment, and for storage of tools, materials, etc., used in general work of repairs.

Pier No. 2, Port Richmond.—(*a*) This is a timber-crib earth-filled structure and has no freight-handling equipment. Length, 185 feet; width at pierhead, 32 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 feet. No commerce passes over this pier. It is used exclusively for the storage of piles, lumber, and various other kinds of material used in the construction and repair of wharves and buildings belonging to the railway company.

Pier No. 1, Port Richmond.—(*a*) This is a timber-crib earth-filled structure and has no freight-handling equipment. Length, 185 feet; width at pierhead, 34 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 feet. No commerce passes over this pier. It is used exclusively for the storage of piles, lumber, and various other kinds of material used in the construction and repair of wharves and buildings belonging to the railway company.

Pier A, Port Richmond.—(*a*) This pier has a crib substructure and timber superstructure and is covered almost its entire length. It has no freight-handling equipment. Length, upper side 682 feet; lower side 680 feet; width at pierhead, 168 feet 6 inches. Depth of water at pierhead, 28 feet at mean low water; alongside, north side 27 feet; south side 25 feet. This pier is used principally for handling cargoes of export freight carried by the Philadelphia Trans-Atlantic Line (Philadelphia-London). Other vessels are also handled at the pier. The aggregate yearly tonnage amounts to about 125,000 tons of miscellaneous exports and imports, which is carried in steamers and sailing vessels.

Pier B, Port Richmond.—(*a*) This pier has a crib substructure and timber superstructure and is covered almost its entire length. It is equipped with an elevator and grain-loading appliances. Length, upper side 645 feet; lower side 725 feet 6 inches; width at pierhead, 140 feet. Depth of water at pierhead, 28 feet at mean low water; alongside, north side 25 feet; south side 26 feet. The pier is used principally for handling export cargoes carried by the Furness Line (Philadelphia-Leith). Other vessels are also handled at the pier. The aggregate yearly tonnage amounts to about 288,000 tons of imports and exports, which is carried in steamers and sailing vessels.

(*a*) General location and description.

Pier C, Port Richmond.—(*a*) This pier has a crib substructure and timber superstructure and is covered almost its entire length. It has no freight-handling equipment. Length, 645 feet; width at pierhead, 150 feet. Depth of water at pierhead, 28 feet at mean low water; alongside, north side 28 feet; south side 25 feet. The pier is used principally to handle cargoes to and from the Holland-America Line (Philadelphia-Rotterdam), and the Scandinavian-American Line (Philadelphia-Copenhagen). Other vessels are also handled at the pier when it can be done without conflicting with vessels of the regular lines. The aggregate yearly tonnage amounts to about 120,000 tons of miscellaneous imports and exports, which is carried in steamers and sailing vessels.

Pier D, Port Richmond.—(*a*) This pier has a crib substructure and timber superstructure. It is covered almost its entire length, and is double-decked. It has no freight-handling equipment. Length, upper side 660 feet; lower side 695 feet; width at pierhead, 200 feet. Depth of water at pierhead, 28 feet at mean low water; alongside, north side 28 feet; south side 27 feet. The pier is used principally for handling freight to and from the Philadelphia-Manchester Line (Philadelphia-Manchester), and the Hamburg-American Line (Philadelphia-Hamburg). Other vessels are also handled at the pier when it can be done without conflicting with vessels of the regular lines. The aggregate yearly tonnage amounts to about 200,000 tons of miscellaneous imports and exports, which is carried in steamers and lighters.

Pier G, Port Richmond.—(*a*) This pier is a timber-crib earth-filled structure, equipped with electric cranes for handling freight. Length, upper side 630 feet, lower side 800 feet; width at pierhead, 142 feet. Depth of water at pierhead, 26 feet at mean low water; alongside, north side 20 feet, south side 18 feet. The pier is used for handling general domestic freight, with occasional export and import shipments. The aggregate yearly tonnage amounts to about 200,000 tons of miscellaneous freight, which is carried in steamers, sailing vessels, and various river craft.

Pier H, Port Richmond.—(*a*) This pier is a timber-crib earth-filled structure, equipped with steam derricks for handling freight. Length, upper side 480 feet, lower side 414 feet; width at pierhead, 99 feet. Depth of water at pierhead, 18 feet at mean low water; alongside, 15 feet. The pier is used for handling cargoes from all kinds of vessels moving in connection with the railroad. The aggregate yearly tonnage amounts to about 100,000 tons of miscellaneous freight, which is carried in schooners, barges, and other river craft.

Pier I, Port Richmond.—(*a*) This pier is constructed of wooden pontoons on piles, and has no freight-handling equipment. It is used as a car-float ferry slip. Length, 108 feet; width at pierhead, 35 feet. Depth of water at pierhead, 12 feet at mean low water. The service to and from this pier is by car floats, and no other vessels discharge or load at the station. The aggregate yearly tonnage is estimated at 800,000 tons of miscellaneous freight, which is carried in railroad cars on car floats to various points on the river.

All these terminals are owned by the Philadelphia & Reading Railway Co., and are adequate for present requirements. They are open

(*a*) General location and description.

to all water carriers without wharfage charge, provided the vessels' cargoes are moved in connection with the railroad.

(*b*) With the exception of Piers Nos. 3, 5, 6, and 7, all the terminals have direct physical connection with the Philadelphia & Reading Railway Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 126 north, at the foot of Allegheny Avenue.—(*a*) This is a pile and timber structure, and has no freight-handling equipment. Length, upper side 495 feet, lower side 526 feet; width at pierhead, 57 feet. Depth of water at pierhead, 16 feet at mean low water; alongside, north side 6 feet, south side 15 feet. The pier is owned by the municipality, and used principally as a recreation pier. An occasional vessel lands freight at the wharf. The aggregate yearly tonnage amounts to about 1,500 tons, chiefly stone, paving blocks, and mine props, which is carried in small sailing vessels and canal boats. It is adequate for present requirements. The pier is open to all water carriers, and no wharfage is charged.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 27 north, between Allegheny Avenue and Westmoreland Street.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 490 feet; width at pierhead, 45 feet. Depth of water at pierhead, 1 foot at mean low water; alongside, 1 to 0 feet. The pier is owned by William B. Adamson, and is used as a landing for motor boats and other pleasure craft. No commerce passes over the pier.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) The roadway leading from the terminal is in poor condition.

Piers Nos. 128 and 129 north, between Westmoreland and Ontario Streets.—(*a*) Pier No. 128 is a pile and concrete structure, covered almost its entire length by an open shed. It is equipped with an electric crane for handling freight. Length, 641 feet; width at pierhead, 83 feet. Depth of water at pierhead, 18 feet at mean low water; alongside, 18 feet.

Pier No. 129 is a pile and concrete structure, covered almost its entire length by an open shed. It is equipped with an electric crane for handling freight. Length, 641 feet; width at pierhead, 110 feet. Depth of water at pierhead, 18 feet at mean low water; alongside, 18 feet.

The piers are owned by William L. Ludascher, and used by the owner in connection with a lumber yard. The aggregate yearly tonnage amounts to about 50,000 tons of lumber, which is carried in steamers, sailing vessels, and barges. The piers are adequate for present requirements, and are not open to water carriers generally.

(*b*) The terminals have direct physical connection with the Pennsylvania Railroad and the Philadelphia & Reading Railway Cos., but there is no arrangement for interchange of traffic on through freight.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*c*) There is a good roadway leading from each terminal.

Piers Nos. 131 and 132 north, between Tioga and Venango Streets.—(*a*) Pier No. 131 is a timber-crib earth-filled structure, equipped with a steam derrick and trolley system for handling freight. Length, upper side, 550 feet; lower side, 270 feet; width at pierhead, 75 feet. Depth of water at pierhead, 1 foot at mean low water; alongside, north side, 10 feet; south side, 1 foot.

Pier No. 132 is a timber-crib earth-filled structure, equipped with a steam derrick and conveyor for handling freight. Length, upper side, 615 feet; lower side, 620 feet; width at pierhead, 50 feet. Depth of water at pierhead, 18 feet at mean low water; alongside, north side, 5 feet; south side, 12 feet.

The piers are owned by the municipality. They are leased to the United Gas Improvement Co., and used in connection with its gas plant. They are adequate for present requirements. The aggregate year tonnage amounts to about 37,000 tons, chiefly pulp wood, lumber, cordwood, and coal, which is carried in steamers, sailing vessels, barges, and canal boats. The terminals are open to all water carriers on payment of wharfage.

(*b*) Pier No. 131 only has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 133 north, between Venango Street and Erie Avenue.—(*a*) This is a timber-crib earth-filled structure, equipped with a steam derrick for handling freight. Length, 184 feet; width at pierhead, 36 feet. Depth of water at pierhead, 3 feet at mean low water; alongside, 3 to 0 feet. The pier is owned by M. L. Shoemaker & Co., and used in connection with their fertilizer plant. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 36,000 tons of fertilizing material, which is carried in small sailing vessels and barges. The terminal is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 1 south, between Market and Chestnut Streets.—(*a*) This is a timber-crib earth-filled structure, covered almost its entire length by a frame shed. It is equipped with an overhang and chute for loading street dirt and ashes on barges. Length, 149 feet; width at pierhead, 65 feet. Depth of water at pierhead, 14 feet at mean low water; alongside, north side no dock, south side 16 feet. The pier is leased to a contractor, and used in connection with his plant. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 24,000 tons of street dirt and ashes, which is carried in scows and barges. It is a private terminal and is not open to water carriers generally.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 3 south, between Market and Chestnut Streets.—(*a*) This is an open pile and timber structure covered its entire length. It has no freight-handling equipment. Length, 560 feet; width at pierhead, 79 feet 9¾ inches. Depth of water at pierhead, 28 feet at mean low water; alongside, north side 19 feet, south side 20 feet. The pier is used in connection with a number of steamship lines trading to foreign and domestic ports, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 470,000 tons, chiefly fruits, skins, grain, flour, and general merchandise, which is carried in steamers and steamboats. The wharfage privilege is leased to the different lines on a yearly lease, and the terminal is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 5 south, at the foot of Chestnut Street.—(*a*) This pier has an open pile and timber substructure, and a steel superstructure with a recreation pier on the upper deck. It has no freight-handling equipment. Length, 554 feet 6 inches; width at pierhead, 80 feet 1 inch. Depth of water at pierhead, 33 feet at mean low water; alongside, north side, 20 feet; south side, 12 feet. It is owned by the municipality and leased to two river-transportation companies. The pier is adequate for present requirements. The aggregate yearly tonnage amounts to about 105,910 tons, chiefly farm produce, live stock, skins, and general merchandise, carried on steamboats. The terminal is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 8 south, between Chestnut and Walnut Streets, opposite Ton Alley.—(*a*) This is an open pile and timber structure, covered its entire length. It has no freight-handling equipment. Length, upper side, 506 feet; lower side, 562 feet; width at pierhead, 94 feet. Depth of water at pierhead, 33 feet at mean low water; alongside, 15 feet. The pier is owned by the Philadelphia & Reading Railway Co., and is used exclusively as a city freight station. The service to and from this station is by car floats placed alongside of pier and no other vessels discharge or load at the pier. The aggregate yearly tonnage amounts to about 125,000 tons, chiefly lumber, coal, and general merchandise, carried in railroad cars on car floats across the river to Camden. The terminal is not open to other water carriers.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad and the Philadelphia & Reading Railway Companies

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

via Philadelphia Belt Line, but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 9 south, between Ton Alley and Walnut Street.—(*a*) This is a timber-crib earth-filled structure, covered its entire length. It has no freight-handling equipment. Length, 224 feet; width at pierhead, 57 feet 6 inches. Depth of water at pierhead, 15 feet at mean low water; alongside, north side, 15 feet; south side, 18 feet. The pier is used by a river-transportation company in the freight service. The aggregate yearly tonnage amounts to about 43,200 tons, chiefly gravel, lumber, skins, and general merchandise, carried in packets and barges. It is a private terminal, and is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 10, 11, and 14 south, between Walnut and Dock Streets.—(*a*) Piers Nos. 10 and 11 are joined together and have a pile and timber substructure, with a steel superstructure. They are covered their entire length and have no freight-handling equipment. Length, upper side, 567 feet 6 inches; lower side, 494 feet 6 inches; width at pierhead, 184 feet 11 inches. Depth of water at pierhead, 35 feet at mean low water; alongside, north side, 20 feet; south side, 18 feet.

Pier No. 14 has a pile and timber substructure and steel superstructure and is covered its entire length. It has no freight-handling equipment. Length, 503 feet 3 inches; width at pierhead, 120 feet. Depth of water at pierhead, 35 feet at mean low water; alongside, north side, 18 feet; south side, 20 feet.

These piers are owned by the Pennsylvania Railroad Co. and are used exclusively as a city freight station. The service to and from this station is by car floats, and no other vessels discharge or load at the piers. The aggregate yearly tonnage amounts to about 303,000 tons, chiefly coal, lumber, and general merchandise, carried in cars on car floats between Philadelphia and Camden. The piers are not open to other water carriers.

(*b*) The terminals have direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Piers Nos. 18, 20, 22, and 24 south, between Spruce and South Streets.—(*a*) Pier No. 18 has a pile substructure and steel superstructure. It is covered its entire length and has no freight-handling equipment. Length, upper side, 602 feet; lower side, 300 feet; width at pierhead, 67 feet. Depth of water at pierhead, 30 feet at mean low water; alongside, north side, 20 feet; south side, 11 feet.

Pier No. 20 has a pile substructure and steel superstructure and is covered its entire length. It has no freight-handling equipment. Length, upper side, 300 feet; lower side, 580 feet; width at pierhead,

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

139 feet. Depth of water at pierhead, 37 feet at mean low water; alongside, north side, 17 feet; south side, 24 feet.

Pier No. 22 has a pile substructure and steel superstructure. It is covered its entire length and has no freight-handling equipment. Length, 570 feet; width at pierhead, 134 feet. Depth of water at pierhead, 35 feet at mean low water; alongside, 20 feet.

Pier No. 24 has a pile substructure and steel superstructure. It is covered its entire length and has no freight-handling equipment. Length, 554 feet; width at pierhead, 93 feet 9 inches. Depth of water at pierhead, 35 feet at mean low water; alongside, north side, 20 feet; south side, 8 feet.

The piers are used by the Merchants and Miners Transportation Co. in connection with the freight and passenger service and are adequate for present requirements. The aggregate yearly tonnage amounts to about 1,488,568 tons, chiefly cotton, grain, lumber, sugar, ties, and general merchandise, carried in steamers. They are private terminals and are not open to other water carriers.

(*b*) Piers Nos. 22 and 24 have direct physical connection with the Pennsylvania Railroad, the Philadelphia & Reading Railway, and the Baltimore & Ohio Railroad companies via Philadelphia Belt Line. There is an arrangement between the water carriers and the Pennsylvania Railroad Co. for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 28 south, between South and Bainbridge Streets.—(*a*) This is a pile and steel structure, covered its entire length and equipped with overhead telpher system for handling sugar. Length, 543 feet; width at pierhead, 77 feet 6 inches; depth of water at pierhead, 40 feet at mean low water; alongside, north side, 21 feet; south side, 18 feet. The pier is owned by the Franklin Sugar Refining Co. and leased to the Independent Pier Co., but the sugar company uses it occasionally to land cargoes from steamers. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 39,954 tons, chiefly phosphate rock, sugar, cork wood, iron ore, and general merchandise, carried in steamers, sailing vessels, and barges. The terminal is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 31 south, at the foot of Kenilworth Street.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 99 feet 8 inches; width at pierhead, 51 feet. The pier is owned by the municipality. It is in ruins, and is abandoned for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Piers Nos. 30 and 32 south, between Bainbridge and Fitzwater Streets.—(*a*) Pier No. 30 is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 254 feet; width at pierhead, 49 feet; depth of water at pierhead, 17 feet at mean low water; alongside, north side, 19 feet; south side, 14 feet.

Pier No. 32 is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 202 feet; width at pierhead, 46 feet; depth of water at pierhead, 13 feet at mean low water; alongside, north side, 12 feet; south side, 13 feet.

The piers are owned and used by the Franklin Sugar Refining Co., but one outside steamship line discharges lumber at the piers. The aggregate yearly tonnage amounts to about 22,000 tons, carried in steamers. They are private terminals, but are open to all water carriers on payment of wharfage.

(*b*) Pier No. 30 has direct physical connection with the Pennsylvania Railroad, the Philadelphia & Reading Railway, and the Baltimore & Ohio Railroad Cos., via Philadelphia Belt Line, but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 33 south, between Kenilworth and Fitzwater Streets.—(*a*) This is a crib earth-filled structure, and has no freight-handling equipment. Length, upper side, 112 feet; lower side, 42 feet; width at pierhead, 30 feet; depth of water at pierhead, 15 feet at mean low water; alongside, 12 feet. The pier is owned by the Reading Co. It is dilapidated and abandoned for commercial purposes.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad, the Philadelphia & Reading Railway, and the Baltimore & Ohio Railroad Cos., via Philadelphia Belt Line. There is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 34 and 35 south, between Kenilworth and Fitzwater Streets.—(*a*) Pier No. 34 has a pile and concrete substructure and steel superstructure. It is covered its entire length and equipped with electric winches for handling freight. Length, upper side, 553 feet 6 inches; lower side, 623 feet 6 inches; width at pierhead, 100 feet. Depth of water at pierhead, 41 feet at mean low water; alongside, north side, 21 feet; south side, 20 feet.

Pier No. 35 is a pile and timber structure, covered its entire length. It is equipped with a stiff-legged derrick for handling freight. Length, 293 feet; width at pierhead, 50 feet. Depth of water at pierhead, 15 feet at mean low water; alongside, north side, 16 feet; south side, 15 feet.

Both piers are owned by the Reading Co. and are leased to the Independent Pier Co. They are adequate for present requirements. The aggregate yearly tonnage amounts to about 148,000 tons, chiefly sulphur, cork, iron, coal, oils, and general merchandise, which is carried in steamers, sailing vessels, and lighters. The piers are open to all water carriers on equal terms on payment of wharfage.

(*b*) Pier No. 34 has direct physical connection with the Pennsylvania Railroad, the Philadelphia & Reading Railway, and the Balti-

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

more & Ohio Railroad Cos., via Philadelphia Belt Line, but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Piers Nos. 36, 37, and 38 south, between Fitzwater and Catharine Streets.—(*a*) Pier No. 36 is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 209 feet; width at pierhead, 40 feet 3 inches. Depth of water at pierhead, 17 feet at mean low water; alongside, 15 feet.

Pier No. 37 is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, upper side, 298 feet; lower side, 196 feet; width at pierhead, 40 feet 6 inches. Depth of water at pierhead, 9 feet at mean low water; alongside, 8 feet.

Pier No. 38 is a timber-crib earth-filled structure, covered its entire length. It has no freight-handling equipment. Length, upper side, 210 feet; lower side, 282 feet; width at pierhead, 55 feet. Depth of water at pierhead, 15 feet at mean low water; alongside, north side, 9 feet; south side, 8 feet.

The piers are owned and used by the Philadelphia & Reading Railway Co. and are adequate for present requirements. Pier No. 38 is used exclusively as a city freight station. Service to and from this station is by car floats placed alongside the pier, and no vessels discharge at this terminal. The aggregate yearly tonnage amounts to about 184,000 tons, chiefly lumber, railroad ties, and general merchandise, carried in railroad cars on car floats. This terminal is not open to other water carriers. Piers Nos. 36 and 37 are being demolished and will be rebuilt as one freight station.

(*b*) Pier No. 36 only has direct physical connection with the Pennsylvania Railroad, the Philadelphia & Reading Railway, and the Baltimore & Ohio Railroad Cos., via the Philadelphia Belt Line, but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 39 south, between Catharine and Queen Streets.—(*a*) This is an open pile and timber structure, covered almost its entire length, and equipped with a steam derrick for handling freight. Length, 312 feet; width at pierhead, 60 feet 9 inches. Depth of water at pierhead, 15 feet at mean low water; alongside, north side 17 feet; south side 10 feet. The pier is owned and used by the American Ice Co., and is adequate for present requirements. The aggregate yearly tonnage amounts to about 18,000 tons of ice, which is carried in sailing vessels. The terminal is open to all water carriers on payment of wharfage.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad, the Philadelphia & Reading Railway, and the Baltimore & Ohio Railroad Cos., via Philadelphia Belt Line, but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 40 south, between Catharine and Queen Streets.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 332 feet; width at pierhead, 44 feet 4 inches. Depth of water at pierhead, 12 feet at mean low water;

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

alongside, north side 13 feet; south side 7 feet. The pier is owned and used by Edward C. Knight, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 17,000 tons of lumber and general merchandise, carried in steamers, sailing vessels, barges, and lighters. It is a private terminal, but is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Property of the Pennsylvania Railroad Co., lying between Queen and Reed Streets, described as follows:

Pier No. 41 south.—(*a*) This is a pile and timber structure, covered almost its entire length. It is equipped with a derrick for handling freight. Length, upper side, 634 feet; lower side, 556 feet; width at pierhead, 83 feet. Depth of water at pierhead, 43 feet at mean low water; alongside, north side, 5 feet; south side, 25 feet.

Pier No. 43 south.—(*a*) This is a pile and timber structure, covered almost its entire length. It has no freight-handling equipment. Length, upper side, 263 feet; lower side, 335 feet; width at pierhead, 84 feet 9 inches. Depth of water at pierhead, 15 feet at mean low water; alongside, 12 feet. This pier has been practically demolished.

Pier No. 44 south.—(*a*) This is a pile and timber structure, covered almost its entire length. It has no freight-handling equipment. Length, upper side, 346 feet; lower side, 350 feet; width at pierhead, 85 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 7 feet. This pier has been practically demolished.

Pier No. 46 South.—(*a*) This is a pile and timber structure, covered almost its entire length. It has no freight-handling equipment. Length, upper side, 624 feet; lower side, 645 feet; width at pierhead, 102 feet. Depth of water at pierhead, 44 feet at mean low water; alongside, north side, 14 feet; south side, 25 feet.

Pier No. 48 south.—(*a*) This is a pile and timber structure, covered almost its entire length. It is equipped with an elevator for handling grain. Length, 686 feet; width at pierhead, 102 feet. Depth of water at pierhead, 36 feet at mean low water; alongside, north side, 25 feet; south side, 24 feet.

Pier No. 49 south.—(*a*) This is a timber crib earth-filled structure and has no freight-handling equipment. Length, 125 feet; width at pierhead, 60 feet. Depth of water at pierhead, 21 feet at mean low water; alongside, north side, 24 feet; south side, 15 feet.

Pier No. 53 south.—(*a*) This is a pile and timber structure, covered almost its entire length. It has no freight-handling equipment. Length, 700 feet; width at pierhead, 152 feet. Depth of water at pierhead, 33 feet at mean low water; alongside, north side, 20 feet; south side, 28 feet.

Pier No. 55 south.—(*a*) This pier has a pile substructure and steel superstructure. It is covered almost its entire length and has no freight-handling equipment. Length, upper side, 649 feet; lower side, 500 feet; width at pierhead, 152 feet. Depth of water at pier-

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

head, 33 feet at mean low water; alongside, north side, 28 feet; south side, 19 feet.

Pier No. 56 south.—(*a*) This is a timber-crib earth-filled structure equipped with derricks for handling freight. Length, upper side, 380 feet; lower side, 398 feet; width at pierhead, 81 feet. Depth of water at pierhead, 18 feet at mean low water; alongside, north side, 21 feet; south side, 25 feet.

Pier No. 57 south.—(*a*) This is a timber-crib earth-filled structure equipped with derricks for handling freight. Length, upper side, 460 feet; lower side, 485 feet; width at pierhead, 102 feet. Depth of water at pierhead, 19 feet at mean low water; alongside, north side, 26 feet; south side, 23 feet.

These piers are all used in connection with the railroad, and are adequate for present requirements. The aggregate yearly tonnage amounts to about 960,000 tons, chiefly grain, lumber, sugar, phosphate rock, petroleum, and general merchandise, which is carried in steamers, sailing vessels, barges, lighters, and canal boats. The terminals are open to all water carriers, and no wharfage is charged provided a reasonable amount of the vessel's cargo is moved in connection with the Pennsylvania Railroad.

(*b*) With the exception of piers Nos. 44 and 46, the terminals have direct physical connection with the Pennsylvania Railroad Co., and the Southern Steamship Co., which docks at Pier No. 41, has an arrangement with the Pennsylvania Railroad Co. for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Piers Nos. 59, 60, and 61 south, between Reed and Dickinson Streets.—(*a*) Pier No. 59 is a pile and timber structure, covered almost its entire length. It is equipped with an electric telpher system for handling sugar. Length, upper side, 460 feet; lower side, 520 feet; width at pierhead, 80 feet. Depth of water at pierhead, 15 feet at mean low water; alongside, north side, 20 feet; south side, 16 feet.

Pier No. 60 is a timber-crib earth-filled structure covered almost its entire length. It is equipped with an electric telpher system for handling sugar. Length, upper side, 560 feet; lower side, 515 feet; width at pierhead, 80 feet. Depth of water at pierhead, 15 feet at mean low water; alongside, north side, 16 feet; south side, 20 feet.

Pier No. 61 is a timber-crib earth-filled structure covered almost its entire length. It is equipped with an electric telpher system for handling sugar. Length, upper side, 560 feet; lower side, 630 feet; width at pierhead, 75 feet. Depth of water at pierhead, 18 feet at mean low water; alongside, north side, 19 feet; south side, 21 feet.

These piers are owned and used by the Spreckels Sugar Refining Co., and are adequate for present requirements. The aggregate yearly tonnage amounts to about 184,000 tons, chiefly sugar, fruit, and general merchandise, which is carried in steamers, sailing vessels, and barges. They are private terminals and are not open to water carriers generally.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*b*) The terminals have no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Piers Nos. 62 and 63 south, between Dickinson and Tasker Streets.—(*a*) Pier No. 62 is a timber-crib earth-filled structure, equipped with derricks for handling freight. Length, upper side, 638 feet; lower side, 410 feet; width at pierhead, 55 feet. Depth of water at pierhead, 18 feet at mean low water; alongside, north side, 18 feet; south side, 12 feet.

Pier No. 63 is a timber-crib earth-filled structure, equipped with derricks for handling freight. Length, upper side, 460 feet; lower side, 641 feet; width at pierhead, 60 feet. Depth of water at pierhead, 19 feet; alongside, north side, 12 feet; south side, 10 feet.

The piers are owned by the Baltimore & Ohio Railroad Co. and are used in connection with a car-float ferry for transfer of car floats to various points on the river. They are adequate for present requirements. The aggregate yearly tonnage amounts to about 601,000 tons, chiefly lumber, ties, sugar, and general merchandise, which is carried in steamers, sailing vessels, barges, and car floats. The terminals are not open to other water carriers.

(*b*) The terminals have direct physical connection with the Baltimore & Ohio Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 64 south, between Dickinson and Tasker Streets.—(*a*) This is a timber-crib earth-filled structure, equipped with a derrick for handling freight. Length, upper side, 290 feet; lower side, 280 feet; width at pierhead, 60 feet. Depth of water at pierhead, 9 feet at mean low water; alongside, 8 feet. The pier is owned by the Philadelphia & Reading Railway Co. and leased to G. W. Edmonds & Co. It is used in connection with a coal yard and is adequate for present requirements. The aggregate yearly tonnage amounts to about 52,000 tons of coal and fertilizer, which is carried in canal boats and barges. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 67, 68, and 69 south, between Tasker and Morris Streets.—(*a*) Pier No. 67 is a timber-crib and pile structure, equipped with electric and steam cranes for handling freight. Length, upper side, 501 feet; lower side, 445 feet; width at pierhead, 61 feet. Depth of water at pierhead, 30 feet at mean low water; alongside, north side, 26 feet; south side, 6 feet.

Pier No. 68 is a timber-crib and pile structure, covered almost its entire length. It is equipped with electric and steam cranes for handling freight. Length, upper side, 465 feet; lower side, 511 feet; width at pierhead, 44 feet. Depth of water at pierhead, 24 feet at mean low water; alongside, north side, 4 feet; south side, 20 feet.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Pier No. 69 is a timber-crib earth-filled structure, equipped with electric and steam cranes for handling freight. Length, upper side, 510 feet; lower side, 460 feet; width at pierhead, 46 feet. Depth of water at pierhead, 24 feet at mean low water; alongside, north side, 20 feet; south side, 9 feet.

The piers are owned by the McCahan Sugar Refining Co., and are used in connection with its refinery. They are adequate for present requirements. The aggregate yearly tonnage amounts to about 61,404 tons, chiefly sugar, molasses, and general merchandise, carried in steamers and barges. They are private terminals and are not open to water carriers generally.

(*b*) The terminals, with the exception of Pier No. 69, have direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Piers Nos. 70 and 72 south, between Morris and Canal Streets.—(*a*) Pier No. 70 is a timber-crib earth-filled structure, partly covered by two sheds. It is equipped with a derrick for handling freight. Length, upper side, 352 feet; lower side, 200 feet; width at pierhead, 90 feet. Depth of water at pierhead, 21 feet at mean low water; alongside, north side, 9 feet; south side, 17 feet.

Pier No. 72 is a timber-crib earth-filled structure, equipped with a derrick for handling freight. Length, upper side, 450 feet; lower side, 420 feet; width at pierhead, 46 feet. Depth of water at pierhead, 27 feet at mean low water; alongside, north side, 24 feet; south side, 16 feet.

The piers are owned by Baugh & Sons Co., and are used in connection with a fertilizer plant. They are adequate for present requirements. The aggregate yearly tonnage amounts to about 24,000 tons, chiefly bone, phosphate, fish scrap, and fertilizer, which is carried in steamers, sailing vessels, and barges. They are private terminals, and are not open to water carriers generally.

(*b*) The terminals have direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Piers Nos. 73 and 74 south, between Canal and McKean Streets.—(*a*) Pier No. 73 is divided into two sections. These are pile and timber structures, equipped with derricks for handling freight. Upper section: Length, 530 feet; width at pierhead, 20 feet 6 inches. Lower section: Length, 510 feet; width at pierhead, 20 feet 6 inches. Depth of water at pierhead, 26 feet at mean low water; alongside, 26 to 10 feet.

Pier No. 74 is a pile and timber structure equipped with derricks for handling freight. Length, upper side, 502 feet; lower side, 514 feet; width at pierhead, 20 feet. Depth of water at pierhead, 26 feet at mean low water; alongside, 26 to 10 feet.

The piers are owned by the Philadelphia Ship Repair Co. and are used in connection with its shipyard. They are adequate for present requirements. No commerce passes over these piers.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*b*) The terminals have no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminals.

Pier No. 80 south, between Snyder Avenue and Jackson Street.—(*a*) This was a pile and timber structure, covered its entire length. It had no freight-handling equipment. Length, upper side, 640 feet; lower side, 555 feet; width at pierhead, 137 feet. Depth of water at pierhead, 30 feet at mean low water; alongside, north side, 29 feet; south side, 20 feet. The pier is owned by the Baltimore & Ohio Railroad Co., and was used in connection with the railroad. It was almost entirely destroyed by fire on October 2, 1912, but is being rebuilt. The aggregate yearly tonnage in 1911 amounted to about 158,000 tons, chiefly ores, flaxseed, paper, wood pulp, and general merchandise, carried in steamers, sailing vessels, barges, and lighters. It was a private pier, but was open to all water carriers on payment of wharfage.

(*b*) The terminal had direct physical connection with the Baltimore & Ohio Railroad Co., but there was no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 81 south, between Snyder Avenue and Jackson Street.—(*a*) This is a timber-crib structure, equipped with a trestle and chutes for loading coal on vessels. Length, upper side 578 feet; lower side, 570 feet; width at pierhead, 42 feet. Depth of water at pierhead, 24 feet at mean low water; alongside, north side, 24 feet; south side, 16 feet. The pier is owned by the Baltimore & Ohio Railroad Co. and is used exclusively for the storage of coal, which is supplied principally to harbor tugs as bunker coal. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 22,072 tons of coal, carried in tugs, steamers, and steamboats.

(*b*) The terminal has direct physical connection with the Baltimore & Ohio Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 82 south, between Jackson and Wolf Streets.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, upper side 590 feet; lower side 603 feet; width at pierhead, 41 feet. Depth of water at pierhead, 16 feet at mean low water; alongside, 16 to 0 feet. The pier is owned by the Wm. Cramp & Sons Ship & Engine Building Co. It is in a dilapidated condition, and is used only for storage purposes. No commerce passes over the pier.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) The roadway leading from the terminal is in poor condition.

Piers Nos. 92, 93, and 94 south, between Porter and Shunk Streets.—(*a*) Pier No. 92 is a timber-crib earth-filled structure, equipped with derricks for handling freight. Length, upper side 460 feet; lower side 398 feet; width at pierhead, 73 feet. Depth of water at pierhead, 24 feet at mean low water; alongside, north side 22 feet; south side 15 feet.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Pier No. 93 is a timber-crib earth-filled structure, equipped with derricks for handling freight. Length, 400 feet; width at pierhead, 79 feet. Depth of water at pierhead, 18 feet at mean low water; alongside, north side 15 feet; south side 10 feet.

Pier No. 94 is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 380 feet; width at pierhead, 78 feet. Depth of water at pierhead, 3 feet at mean low water; alongside, 3 to 0 feet. It is in a dilapidated condition, and is practically abandoned for commercial purposes.

These piers are owned or leased by the Pennsylvania Salt Co., and are used in connection with its plant. They are adequate for present requirements. The aggregate yearly tonnage amounts to about 485,000 tons, chiefly acid, bauxite, cupreons, pyrites, ores, coal, and heavy chemicals, which is carried in steamers, sailing vessels, barges, and car floats. They are private terminals and are not open to water carriers generally.

(*b*) Pier No. 93 only has direct physical connection with the Pennsylvania and Baltimore & Ohio Railroad Cos., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 103 south, between Johnston and Bigler Streets.—(*a*) This is a timber-crib earth-filled structure, equipped with a derrick for handling freight. Length, upper side 262 feet; lower side 250 feet; width at pierhead, 40 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, north side 3 feet; south side 4 feet. The pier is leased by the General Manufacturing Co., and used in connection with its plant. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 40,000 tons, chiefly chemicals and fertilizers, which is carried in steamers, sailing vessels, and barges. The terminal is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 104 and 105 south, between Bigler and Pollock Streets.—(*a*) Pier No. 104 is a timber-crib earth-filled structure, covered almost its entire length. It is equipped with a derrick for handling freight. Length, upper side 250 feet; lower side 320 feet; width at pierhead, 60 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, north side 3 feet; south side 10 feet.

Pier No. 105 is a timber-crib earth-filled structure, partly covered. It is equipped with a derrick for handling freight. Length, upper side 327 feet; lower side 483 feet; width at pierhead, 61 feet. Depth of water at pierhead, 20 feet at mean low water; alongside, north side 10 feet; south side 22 feet.

The piers are leased to the American Agricultural & Chemical Co., and are used in connection with its fertilizer plant. They are adequate for present requirements. The aggregate yearly tonnage amounts to about 110,000 tons, chiefly coal, chemicals, pyrites, and

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

fertilizer, which is carried in steamers, sailing vessels, barges, and car floats. The terminals are not open to water carriers generally.

(*b*) Pier No. 105 only has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Property of the Pennsylvania Railroad Co., lying between Pollock Street and Pattison Avenue, described as follows:

Pier No. 106 south.—(*a*) This is a pile and timber structure, equipped with derricks for handling freight. It is also used in connection with a car-float ferry. Length, 500 feet; width at pierhead, 100 feet. Depth of water at pierhead, 20 feet at mean low water; alongside, 22 feet. The aggregate yearly tonnage amounts to about 324,000 tons, chiefly phosphate, coal, lumber, ties, fertilizer, magnesite, and general merchandise, which is carried in steamers, sailing vessels, barges, canal boats, and car floats. The pier is open to all water carriers, and no wharfage is charged provided a reasonable amount of the vessel's cargo is moved via the Pennsylvania Railroad.

Greenwich coal piers:

Pier No. 107 south.—(*a*) This is a pile and timber structure. Length, 500 feet; width at pierhead, 60 feet. Depth of water at pierhead, 20 feet at mean low water; alongside, 22 feet.

Pier No. 108 south.—(*a*) This is a pile and timber structure. Length, 500 feet; width at pierhead, 60 feet. Depth of water at pierhead, 20 feet at mean low water; alongside—north side 22 feet, south side 20 feet.

Pier No. 109 south.—(*a*) This is a pile and timber structure. Length, upper side, 500 feet; lower side, 650 feet; width at pierhead, 62 feet. Depth of water at pierhead, 20 feet at mean low water; alongside—north side 20 feet, south side 22 feet.

Pier No. 110 south.—(*a*) This is a pile and timber structure and has no freight-handling equipment. Length, upper side 652 feet, lower side 650 feet; width at pierhead, 65 feet. Depth of water at pierhead, 20 feet at mean low water; alongside, 22 feet. The pier is in a dilapidated condition, and is not used for commercial purposes.

Pier No. 111 south.—(*a*) This is a pile and timber structure. Length, 735 feet; width at pierhead, 60 feet. Depth of water at pierhead, 20 feet at mean low water; alongside—north side 22 feet, south side 20 feet.

With the exception of Pier No. 110, all these piers are equipped with trestles and coal chutes and are used exclusively for loading coal in vessels. The aggregate yearly tonnage amounts to about 366,790 tons of coal, carried in steamers, sailing vessels, barges, and canal boats. The piers are open to all water carriers desiring to load coal, and no wharfage is charged.

Pier No. 112 south (Point House Wharf).—(*a*) This is a pile and timber structure, equipped with a derrick for handling freight. Length, upper side, 470 feet; lower side, 494 feet; width at pierhead, 220 feet. Depth of water at pierhead, 22 feet at mean low water; alongside, north side, 12 feet; south side, 22 feet. The pier is used

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

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in connection with the railroad and is adequate for present requirements. The aggregate yearly tonnage amounts to about 55,500 tons, chiefly ties, lumber, pulp wood, cordwood, laths, and paving blocks, which is carried in steamers, sailing vessels, barges, and canal boats. The terminal is open to all water carriers on payment of wharfage.

(*b*) With the exception of Pier No. 110, all the terminals have direct physical connection with the Pennsylvania Railroad, but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

XXIV. GLOUCESTER, N. J.

Pier No. 1, about 200 feet north of Warren Street.—(*a*) This is a crib earth-filled structure, and has no freight-handling equipment. Length, upper side, 273 feet; lower side, 450 feet; width at pierhead, 151 feet. Depth of water at pierhead, 5 feet at mean low water; alongside, 5 to 0 feet. The pier is owned by a foundry company, is in a dilapidated condition, and has been abandoned for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) The roadway leading from the terminal is in poor condition.

Piers Nos. 2, 3, and 4, between Mercer and Warren Streets, on the property of the Welsbach Co.—(*a*) Pier No. 2 is a timber-crib earth-filled structure, partly covered by a coal chute. It is equipped with a stiff-legged derrick for handling freight. Length, upper side 375 feet; lower side, 48 feet; width at pierhead, 165 feet. Depth of water at pierhead, 3 feet at mean low water; alongside, 3 to 0 feet.

Pier No. 3 is a timber crib, earth-filled structure, partly covered by a brick building at the inner end. It has no freight-handling equipment. Length, 150 feet; width at pierhead, 100 feet. Depth of water at pierhead, 7 feet at mean low water; alongside, 7 to 3 feet.

Pier No. 4 is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 220 feet; width at pierhead. 100 feet. Depth of water at pierhead, 7 feet at mean low water; alongside, 7 to 3 feet.

These three piers are used in connection with the operations of a manufacturing establishment and are adequate for present requirements. The aggregate yearly tonnage amounts to about 6,000 tons, chiefly coal and lumber, carried in canal boats and barges, to be used in connection with the plant. They are private terminals and are not open to water carriers generally.

(*b*) The terminals have no direct physical connection with any railroad and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 5, at the foot of Mercer Street.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 284 feet; width at pierhead, 34 feet. Depth of water at pierhead, 0 feet at mean low water. The pier is owned by the municipal-

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

ity and is in a dilapidated condition. The aggregate yearly tonnage amounts to about 1,000 tons, chiefly brick and coal, carried in canal boats. It is a public terminal and is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 6, between Mercer and Middlesex Streets.—(*a*) This is a timber-crib earth-filled structure, equipped with a stiff-legged derrick for handling freight. Length, 266 feet; width at pierhead, 62 feet. Depth of water at pierhead, 4 feet at mean low water; alongside, 4 to 0 feet. The pier is used in connection with a manufacturing establishment. The aggregate yearly tonnage amounts to about 3,000 tons of coal, carried in canal boats, to be used in the operation of the plant. The pier is adequate for present requirements. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 7, at the foot of Market Street.—(*a*) This is a timber-crib earth-filled structure, partly covered by a coal bin. It is equipped with a stiff-legged derrick for handling freight. Length, upper side 43 feet; lower side, 81 feet; width at pierhead, 14 feet. Depth of water at pierhead, 0 feet at mean low water. The pier is used in connection with a coal yard and is adequate for present requirements. The aggregate yearly tonnage amounts to about 7,000 tons of coal, carried in canal boats. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 8 and 9, between Market Street and Jersey Avenue.—(*a*) Pier No. 8 is a timber crib, earth-filled structure, and has no freight-handling equipment. Length, upper side, 100 feet; lower side, 148 feet; width at pierhead, 34 feet. Depth of water at pierhead, 0 feet at mean-low water.

Pier No. 9 is a timber crib, earth-filled structure, and has no freight-handling equipment. Length, 152 feet; width at pierhead, 80 feet. Depth of water at pierhead, 0 feet at mean low water.

Both these piers are in a dilapidated condition, and have been abandoned for commercial purposes.

(*b*) The terminals have no direct physical connection with any railroad.

(*c*) The roadways leading from the terminals are in bad condition.

Piers Nos. 10 and 11, between Jersey Avenue and Ferry Street.—(*a*) Pier No. 10 is a timber crib, earth-filled structure equipped with a stiff-legged derrick for handling freight. Length, 248 feet; width

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

at pierhead, 42 feet. Depth of water at pierhead, 7½ feet at mean low water; alongside, 7½ to 3 feet.

Pier No. 11 is a timber crib, earth-filled structure and has no freight-handling equipment. Length, 248 feet; width at pierhead, 155 feet. Depth of water at pierhead, 8½ feet at mean low water; alongside, 8½ to 2 feet.

Both these piers are used by a ferry company, the former as a coal yard and the latter for storage purposes. The aggregate yearly tonnage amounts to about 15,000 tons of coal, carried in canal boats. The piers are adequate for present requirements. They are private terminals, but are open to all water carriers on payment of wharfage, which is from 1 to 2 cents per ton on freight unloaded on the wharf.

(*b*) The terminals have no direct physical connection with any railroad and there is no arrangement for interchange of traffic on through freight from either terminal.

(*c*) There is a good roadway leading from each terminal.

XXV. WASHINGTON PARK, N. J.

Wharf on the property of the estate of William J. Thompson.—(*a*) This is an open pile and timber structure, partly covered by a frame building and sheds. It is equipped with a stiff-legged derrick for handling freight. Length, 1,579 feet; width at pierhead, 165 feet. Depth of water at pierhead, 18 feet at mean low water; alongside, 18 to 0 feet. It is a private pier and is used principally during the summer season to receive and discharge passengers for the park. The aggregate yearly tonnage amounts to about 2,000 tons of coal, which is carried in canal boats and barges. The terminal is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

XXVI. RED BANK, N. J.

Wharf on the property of a sanitarium association.—(*a*) This is a concrete, earth-filled structure partly covered by a frame pavilion at its outer side. It has no freight-handling equipment. Length, 238 feet; width at pierhead, 102 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, 10 to 2 feet. It is only used during the summer months as a recreation pier for sick children. No commerce passes over the terminal.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

XXVII. BILLINGSPORT, N. J.

Wharf at the foot of Delaware Street.—(*a*) This is a timber crib, earth-filled structure, and has no freight-handling equipment.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Length, 143 feet; width at pierhead, 50 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 to 0 feet. The steamers of a river transportation company make daily stops. The aggregate yearly tonnage amounts to about 200 tons, chiefly general merchandise and small packages. The wharf is adequate for present requirements. It is a private terminal, but is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of Ferry Lane.—(*a*) This is a pile and timber structure, partly covered by a frame shed. It has no freight-handling equipment. Length, 137 feet; width at pierhead, 40 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, 10 to 0 feet. This pier was formerly used by a ferry company, but is now idle and abandoned for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

Wharf at the entrance to Lincoln Park.—(*a*) This a timber crib, earth-filled structure, partly covered by a recreation pier. It has no freight-handling equipment. Length, 170 feet; width at pierhead, 99 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, 10 to 0 feet. This pier was formerly used in connection with an amusement park, but is now idle and abandoned for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a fair roadway leading from the terminal.

XXVIII. THOMPSONS POINT, N. J.

Property of the E. I. du Pont de Nemours Powder Co., described as follows:

Frontage at upper end of property.—(*a*) This is a timber bulkhead frontage, equipped with a stiff-legged derrick and locomotive cranes for handling freight. Length, 400 feet; depth of water, 20 feet at mean low water.

Pier at foot of a roadway, adjoining bulkhead.—(*a*) This is a timber crib, earth-filled structure at water end; open pile and timber at approach. It is equipped with stiff-legged derricks and overhead chutes for handling freight. Length, upper side 193 feet, lower side 402 feet; width at pierhead, 41 feet. Depth of water at pierhead, 19½ feet at mean low water; alongside, 19½ to 6 feet.

Pier at lower end of property.—(*a*) This is a timber crib, earth-filled structure, with trestle for railroad trackage at approach. It has no freight-handling equipment. Length, 390 feet; width at pierhead, 26 feet. Depth of water at pierhead, 11 feet at mean low water; alongside, 11 to 0 feet. Alongside of this pier is a car-float ferry.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

These terminals are used in connection with a powder mill. The aggregate yearly tonnage amounts to about 50,000 tons, chiefly acids, chemicals, sand, and lumber, carried in steamers, barges, and canal boats. The piers are adequate for present requirements. They are private terminals, and are not open to water carriers generally.

(*b*) The terminals have direct physical connection with the Pennsylvania Railroad and the Philadelphia & Reading Railway Cos., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

XXIX. ESSINGTON, PA.

Wharf at the upper end of borough, on the property of the Essington Boat Building Co.—(*a*) This is a timber-crib earth-filled structure and has no freight-handling equipment. Length, 154 feet; width at pierhead, 40 feet. Depth of water at pierhead, 14 feet at mean low water; alongside, 14 to 0 feet. It is used in connection with a boat-building establishment and is adequate for present requirements. No commerce passes over the pier, and it is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

Wharf on the property of the Corinthian Yacht Club.—(*a*) This is a timber-crib earth-filled structure and has no freight-handling equipment. Length, 248 feet; width at pierhead, 293 feet. Depth of water at pierhead, 4 feet at mean low water; alongside, 4 to 0 feet. It is used in connection with a yacht club, and is adequate for present requirements. No commerce passes over the pier, and it is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

Wharf at the lower end of borough, on the property of the Philadelphia Yacht Club.—(*a*) This is a stone earth-filled structure and has no freight-handling equipment. Length, 514 feet; width at pierhead, 59 feet. Depth of water at pierhead, 3 feet at mean low water; alongside, 3 feet. It is used in connection with a yacht club and is adequate for present requirements. No commerce passes over the pier, and it is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

XXX. EDDYSTONE, PA.

Wharf at the foot of a roadway, on the property of the Eddystone Manufacturing Co.—(*a*) This is a crib earth-filled structure, partly covered at the outer end by a frame shed. It is equipped with a

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

traveling crane and two stiff-legged derricks for handling freight. Length, 400 feet; width at pierhead, 61 feet. Depth of water at pierhead, 17½ feet at mean low water; alongside, 17½ to 0 feet. It is used in connection with a manufacturing establishment and is adequate for present requirements. A river transportation company's steamboats make daily stops to receive and discharge freight. The aggregate yearly tonnage amounts to about 55,000 tons, chiefly coal, lumber, general merchandise, and chemicals, carried in steamboats, barges, and canal boats. It is a private terminal and is not open to other water carriers.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad and the Philadelphia & Reading Railway Cos., via the Eddystone & Delaware River Railroad Co. The river transportation company has an arrangement with the railroads for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

XXXI. CHESTER, PA.

Pier No. 1, at the foot of Madison Street.—(*a*) This is a concrete structure, partly covered at the outer end by a frame storage building. It has no freight-handling equipment. Length, 589 feet; width at pierhead, 71 feet. Depth of water at pierhead, 23 feet at mean low water; alongside, 22 to 0 feet. It is used in connection with an industrial establishment and is adequate for present requirements. The aggregate yearly tonnage amounts to about 65,000 tons, chiefly magnesite and chrome ore, carried in steamers. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad and the Philadelphia & Reading Railway Cos., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 2, between Welsh and Market Streets.—(*a*) This is an open pile and timber structure and has no freight-handling equipment. Length, 157 feet; width at pierhead, 71 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. It is used in connection with an industrial establishment and is adequate for present requirements. A river transportation company's steamboats make daily stops to receive and discharge freight for the plant. The aggregate yearly tonnage amounts to about 6,000 tons, chiefly wood pulp, toweling, and paper stock, carried on the steamboats. It is a private terminal and is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad, but the Philadelphia & Reading Railway Co. is near by. The river transportation company has an arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 3, frontage between Welsh and Market Streets.—(*a*) This is a timber bulkhead frontage, equipped with a portable derrick for handling freight. Length, 123 feet; depth of water, 4 feet at mean low water. The aggregate yearly tonnage amounts to about 1,500

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

tons, chiefly sand and lumber, carried in canal boats. It is a public terminal and is open to all water carriers on equal terms. The frontage is adequate for present requirements.

(*b*) The terminal has no direct physical connection with any railroad, but the Philadelphia & Reading Railway Co. is near by. There is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 4, at the foot of Market Street.—(*a*) This is a concrete earth-filled structure, partly covered by a frame building. It has no freight-handling equipment. Length, 195 feet; width at pierhead, 86 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 5 feet. It is owned by the municipality and the privilege of wharfage is leased to a river transportation company. The aggregate yearly tonnage amounts to about 2,000 tons, chiefly live stock and general merchandise, which is carried in steamboats and small sailing vessels. The pier is adequate for present requirements. It is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad. There is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 5, near the foot of Market Street, south side.—(*a*) This is a concrete earth-filled structure, partly covered by a freight shed, and equipped with a derrick for handling freight. Length, 44 feet; width at pierhead, 265 feet. Depth of water at pierhead, 8 feet at mean low water; alongside, 8 feet. It is used by a freight-shipping company, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 40,000 tons, chiefly live stock, grain, produce, hides, and general merchandise carried in steam packets. It is a private terminal, and is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad, but the Philadelphia & Reading Railway Co.'s tracks are near by. There is an arrangement with the Southern & Western Railroad Co. for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 6, between Market Street and Edgemont Avenue.—(*a*) This is a timber-crib earth-filled structure, partly covered at the outer end by a small frame building. It is equipped with derricks and hoisters for handling freight. Length, 355 feet; width at pierhead, 262 feet. Depth of water at pierhead, 5 to 11 feet at mean low water; alongside, 11 to 5 feet. Four river transportation companies' steamers make daily stops to receive and discharge freight. The aggregate yearly tonnage amounts to about 45,500 tons, chiefly coal, sand, live stock, farm produce, and general merchandise, carried in steamboats, canal boats, and barges. The pier is adequate for present requirements. It is a public terminal, and is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Pier No. 7, at the foot of Edgemont Avenue.—(*a*) This is a concrete earth-filled structure, and has no freight-handling equipment. Length, 129 feet; width at pierhead, 29 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 to 4 feet. The pier is owned by the municipality, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 800 tons, chiefly coal and sand carried in canal boats. It is a public terminal, and is open to all water carriers on equal terms.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 8, between Chester Creek and Franklin Street.—(*a*) This is a timber-crib earth-filled structure, partly covered by a frame building. It is equipped with a traveling crane and derricks for handling freight. Length, upper side, 292 feet; lower side, 280 feet; width at pierhead, 625 feet. Depth of water at pierhead, 7 feet at mean low water; alongside, 7 to 2 feet. The pier is used in connection with an industrial plant, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 10,000 tons, chiefly sand and iron castings, which is carried in small sailing vessels, canal boats, and lighters. It is a private pier, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, but the Philadelphia & Reading Railway Co.'s tracks are near by. There is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 9, at the foot of Fulton Street.—(*a*) This is a concrete earth-filled structure, equipped with a portable derrick for handling freight. Length, 261 feet; width at pierhead, 134 feet. Depth of water at pierhead, 2 feet at mean low water; alongside, 2 to 0 feet. The pier is used in connection with a pumping plant and is adequate for present requirements. The aggregate yearly tonnage amounts to about 1,400 tons of coal, which is carried in canal boats. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Piers Nos. 10, 11, and 12, between Lloyd and Barker Streets.—(*a*) Pier No. 10 is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 435 feet; width at pierhead, 25 feet. Depth of water at pierhead, 8 feet at mean low water; alongside, 8 to 0 feet.

Pier No. 11 is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, upper side, 110 feet; lower side, 40 feet; width at pierhead, 330 feet. Depth of water at pierhead, 2½ feet at mean low water; alongside, 2½ to 0 feet.

Pier No. 12 is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, upper side, 320 feet; lower

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

side, 270 feet; width at pierhead, 30 feet. Depth of water at pierhead, 2 feet at mean low water; alongside, 2 to 0 feet.

These three piers were formerly used in connection with a shipbuilding establishment, which has been idle for a number of years. They are in a dilapidated condition and have been abandoned for commercial purposes.

(*b*) The terminals have no direct physical connection with any railroad, but the Philadelphia & Reading Railway Co.'s tracks are near by.

(*c*) There is a good roadway leading from each terminal.

Piers Nos. 13 and 14, between Howell and Morris Streets.—(*a*) Pier No. 13 is an open-pile and timber structure and has no freight-handling equipment. Length, 550 feet; width at pierhead, 50 feet. Depth of water at pierhead, 15 feet at mean low water; alongside, 15 to 3 feet.

Pier No. 14 is a timber-crib earth-filled structure, partly covered by a frame building. It is equipped with cranes and derricks for handling freight. Length, upper side, 600 feet; lower side, 210 feet. Depth of water at pierhead, 16 feet at mean low water; alongside, 16 to 3 feet. Width at pierhead, 30 feet.

These two piers are used in connection with an industrial establishment. The aggregate yearly tonnage amounts to about 30,000 tons, chiefly logwood, coal, and general merchandise, carried in steamers, barges, and canal boats. The piers are adequate for present requirements. They are private terminals and are not open to water carriers generally.

(*b*) The terminals have direct physical connection with the Philadelphia & Reading Railway Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

Pier No. 15, between Norton and Jeffreys Streets.—(*a*) This is an open pile and timber structure, partly covered at the outer end by a frame warehouse. It is equipped with a stiff-legged derrick for handling freight. Length, 550 feet; width at pierhead, 104 feet. Depth of water at pierhead, 8 feet at mean low water; alongside, 8 to 0 feet. The pier is used in connection with an industrial establishment and is adequate for present requirements. The aggregate yearly tonnage amounts to about 800 tons of plaster, which is carried in sailing vessels. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 16, at the foot of Jeffrey Street.—(*a*) This is an open pile and timber structure, partly covered at the outer end by a frame building. It is equipped with a cableway with self-dumping buckets. Length, 379 feet; width at pierhead, 9 feet. Depth of water at pierhead, 20 feet at mean low water; alongside, 20 to 0 feet. This pier is used in connection with an industrial establishment, and is adequate for present requirements. The aggregate yearly tonnage

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

amounts to about 40,000 tons of plaster carried in steamers. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, but the Philadelphia & Reading Railway and the Pennsylvania Railroad Cos. tracks are near by. There is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 17, at the foot of Jeffrey Street, south side.—(*a*) This is an open pile and timber structure at the outer end, with a timber crib, earth-filled approach, and has no freight-handling equipment. Length, 388 feet; width at pierhead, 107 feet. Depth of water at pierhead, 9 feet at mean low water; alongside, 9 to 0 feet. The pier is used in connection with an industrial establishment, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 18,000 tons, chiefly sand, which is carried in canal boats. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, but the Philadelphia & Reading Railway and the Pennsylvania Railroad Cos.' tracks are near by. There is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 18, at the foot of Wilson Street.—(*a*) This is a pile and timber structure, equipped with derricks for handling freight. Length, 357 feet; width at pierhead, 30 feet. Depth of water at pierhead, 25 feet at mean low water; alongside, 25 to 14 feet. The pier is used in connection with an industrial establishment, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 150,000 tons of iron ore, which is carried in steamers, sailing vessels, and barges. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania and the Philadelphia & Reading Railway Cos., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Pier No. 19, at the foot of Booth Street.—(*a*) This is a timber-crib earth-filled structure, with a pile and timber trestle for carrying a pipe line. Length, 81 feet; width at pierhead, 81 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 to 0 feet. The pier is used in connection with an oil refinery, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 3,000 tons of oil, carried in tank barges. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is no roadway leading from the terminal, and it can only be reached by a foot path.

Piers Nos. 20, 21, and 22, between Clayton and Irving Streets.—(*a*) Pier No. 20 is an open pile and timber structure, and has no

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

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freight-handling equipment. Length, upper side, 280 feet; lower side, 290 feet; width at pierhead, 60 feet. Depth of water at pierhead, 18 feet at mean low water; alongside, 18 to 4 feet.

Pier No. 21 is an open pile and timber structure, and has no freight-handling equipment. Length, upper side, 300 feet; lower side, 315 feet; width at pierhead, 60 feet. Depth of water at pierhead, 18 feet at mean low water; alongside, 18 to 4 feet.

Pier No. 22 is a timber-crib earth-filled structure, with a narrow trestle leading to pier from approach. It has no freight-handling equipment. Length, upper side, 300 feet; lower side, 260 feet; width at pierhead, 60 feet. Depth of water at pierhead, 17½ feet at mean low water; alongside, 17½ to 0 feet.

These piers were formerly used in connection with an oil refinery, which has been idle for a number of years. They are in ruins, and have been abandoned for commercial purposes.

(*b*) The terminals have no direct physical connection with any railroad.

(*c*) The roadways leading from the terminals are in bad condition.

XXXII. MARCUS HOOK, PA.

Wharf at the upper end of borough, on the property of the Union Petroleum Co.—(*a*) This was an open pile and timber structure, covered its entire length by a frame shed. It was equipped with a pipe line and conveyor for loading and discharging oil. Length, 600 feet; width at pierhead, 150 feet. Depth of water at pierhead, 27 feet at mean low water; alongside, 27 to 23 feet. The pier was used in connection with a refinery, but recently was almost entirely destroyed by fire. The aggregate yearly tonnage amounted to about 55,000 tons of oil, which was carried in tank and freight steamers. It was a private terminal, and was not open to water carriers generally.

(*b*) The pier has direct physical connection with the Philadelphia & Reading Railway Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf between Church and Market Streets.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 250 feet; width at pierhead, 40 feet. Depth of water at pierhead, 25 feet at mean low water; alongside, 25 to 0 feet. It is owned by the United States, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 3,000 tons. chiefly piles, lumber, farm produce, and general merchandise, carried in steamboats and small sailing vessels. It is used as a public pier, and is open to all water carriers without payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad. A river transportation company's steamers make daily stops at the pier, but there is no arrangement with the railroads for interchange of traffic on through freight.

(*c*) There is a fair roadway leading from the terminal.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Wharf near the foot of Market Street.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 387 feet; width at pierhead, 30 feet. Depth of water at pierhead, 14 feet at mean low water; alongside, 14 to 0 feet. The pier is owned by the United States, and is used for storage purposes and for mooring the vessels of the Government plant engaged in dredging operations on the Delaware River. No commerce passes over the pier. It is open to all water carriers without payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf on the property of the Sun Co.—(*a*) This is an open pile and timber structure, equipped with a pipe line and an endless-chain coal hoist. Length, 400 feet; width at pierhead, 80 feet. Depth of water at pierhead, 28 feet at mean low water; alongside, 28 feet. It is used in connection with an oil refinery and is adequate for present requirements. A river transportation company's steamboats make daily stops to receive and discharge freight. The aggregate yearly tonnage amounts to about 276,473 tons of crude oil, petroleum, and coal, carried in tank and freight steamers, packets, barges, and lighters. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad and the Philadelphia & Reading Railway Cos. via the Delaware River & Union Railroad, but there is no arrangement for interchange of traffic on through freight.

(*c*) There is no roadway leading from the terminal, and it can only be reached by a footpath or the railroad.

Wharf on the property of the Pure Oil Co.—(*a*) This is an open pile and timber structure, partly covered by a frame building at the outer end. It is equipped with a pipe line for handling bulk oil. Length, 380 feet; width at pierhead, 60 feet. Depth of water at pierhead, 29 feet at mean low water; alongside, 29 feet. The pier is used in connection with an oil refinery, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 30,027 tons of crude oil and its products, and coal, carried in tank and freight steamers. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Philadelphia & Reading Railway and the Pennsylvania Railroad Cos., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is no roadway leading from the terminal, and it can only be reached by a footpath and the railroad.

Wharf at the lower end of the borough, near the State line.—(*a*) This is a pile and timber structure, partly covered at its outer end by a frame building. It has no freight-handling equipment. Length, 250 feet; width at pierhead, 50 feet. Depth of water at pierhead, 8½ feet at mean low water; alongside, 8½ to 0 feet. It is owned by the State, and is used in connection with a quarantine station. No com-

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

merce passes over the pier, and it is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

XXXIII. CLAYMONT, DEL.

Wharf at the upper end of the borough, about 600 feet from the State line, on the property of the Atlantic Refining Co.—(*a*) This is a pile and timber structure, partly covered by a frame shed. It is equipped with a pipe line for handling oil. Length, 450 feet; width at pierhead, 50 feet. Depth of water at pierhead, 20 feet at mean low water; alongside, 20 to 0 feet. The pier is used in connection with an oil plant, and is in a dilapidated condition. The aggregate yearly tonnage amounts to about 15,000 tons of petroleum, carried in tank barges. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is no roadway leading from the terminal, and it can only be reached by a footpath.

Wharf at the upper end of the borough, near the State line, on the property of the Texas Co.—(*a*) This is an open pile and timber structure, partly covered at its outer end by a frame freight shed. It is equipped with a pipe line for handling oil. Length, 937 feet; width at pierhead, 56 feet. Depth of water at pierhead, 30 feet at mean low water; alongside, 30 to 0 feet. The pier is used in connection with an oil refinery, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 50,700 tons, chiefly crude oil and its products, carried in tank and freight steamers. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is no roadway leading from the terminal, and the only means of approach is a footpath and the railroad.

XXXIV. BELLEVUE, DEL.

Wharf on the property of the Breakwater Co.—(*a*) This is a timber-crib earth-filled structure, partly covered at the outer end by an overhead coal bin and frame buildings. It is equipped with two stiff-legged derricks for handling freight. Length, 524 feet; width at pierhead, 87 feet. Depth of water at pierhead, 13 feet at mean low water; alongside, 13 to 0 feet. The pier is owned in connection with a quarry, and is used exclusively in the shipment of stone. It is adequate for present requirements. The aggregate yearly tonnage amounts to about 120,000 tons of stone, which is carried in barges. It is a private terminal, and is not open to water carriers generally.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is no roadway leading from the terminal, and it can only be reached by a private narrow-gauge railroad or by a footpath.

XXXV. GORDON HEIGHTS, DEL.

Wharf at the upper end of the borough, on the property of a fertilizer company.—(*a*) This is an open pile and timber structure, partly covered at the outer end by a frame building. It is equipped with an overhead conveyor for loading and unloading vessels. Length, 436 feet; width at pierhead, 104 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. The pier was formerly used in connection with a fertilizer plant, which has been idle for a number of years. It is in a dilapidated condition and has been abandoned for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is no roadway leading from the terminal, and it can only be reached by a footpath.

XXXVI. PENNSGROVE, N. J.

Wharf at the upper end of the borough, on the property of J. A. Denny & Bro.—(*a*) This is a pile and timber structure and has no freight-handling equipment. Length, 185 feet; width at pierhead, 40 feet. Depth of water at pierhead, 2 feet at mean low water; alongside, 2 to 0 feet. The pier is used in connection with a shipping company and is adequate for present requirements. The aggregate yearly tonnage amounts to about 2,500 tons, chiefly canned goods and farm products, which is carried in small gasoline boats and barges. It is a private terminal, but is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of Harmony Street.—(*a*) This is a concrete earth-filled structure, partly covered at the inner end by a frame building. It is equipped with a stiff-legged derrick for handling freight. Length, 117 feet; width at pierhead, 79 feet. Depth of water at pierhead, 0 feet at mean low water. The pier is used in connection with a general supply company, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 7,500 tons, chiefly farm produce, fertilizers, coal, and cement, which is carried in small sailing vessels, canal boats, and barges. It is a private pier, but is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of Main Street.—(*a*) This is a concrete, iron, and timber structure, partly covered at the outer end by a frame building. It has no freight-handling equipment. Length, 337 feet; width at pierhead, 41 feet. Depth of water at pierhead, 7 feet at mean low water; alongside, 7 to 0 feet. This pier is owned and used by a river transportation company, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 1,200 tons, chiefly general merchandise and farm products, which is carried in steamboats. It is a private terminal, but is open to other water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of Maple Avenue.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 83 feet; width at pierhead, 70 feet. Depth of water at pierhead, 0 feet at mean low water. The pier is used as a shipping point for the near-by farmers, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 100 tons, chiefly farm produce and fertilizers. It is a public terminal, and is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

XXXVII. PIGEON POINT, N. J.

Wharf on the property of the Philadelphia & Reading Railway Co.—(*a*) This is an open pile and timber structure, and has no freight-handling equipment. Length, 582 feet; width at pierhead, 57 feet. Depth of water at pierhead, 9 feet at mean low water; alongside, 9 to 3 feet. The pier is used in connection with a car-float ferry for transferring car floats to different points on the river, and occasionally to land cargoes consigned to Wilmington from vessels of too deep draft to navigate the Christiana River to that city. The aggregate yearly tonnage amounts to about 350,000 tons, chiefly coal, feldspar, lumber, and chemicals, which is carried in steamers, car floats, canal boats, and barges. The pier is adequate for present requirements. It is a private terminal, but is open to all water carriers without charge, provided the freight is carried over the Philadelphia & Reading Railway.

(*b*) The terminal has direct physical connection with the Philadelphia & Reading Railway Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is no roadway leading from the terminal, and it can only be reached by a footpath and the railroad.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

XXXVIII. PENNSVILLE, N. J.

Wharf at the foot of Pittsfield Street.—(*a*) This is a pile and timber structure, partly covered at the outer end by a frame building. It has no freight-handling equipment. Length, 290 feet; width at pierhead, 60 feet. Depth of water at pierhead, 5½ feet at mean low water; alongside, 5½ to 0 feet. It is owned and used by a shipping company, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 35,000 tons of canned goods and farm produce, carried in small gasoline boats and steam barges. It is a private terminal, but is open to all water carriers on payment of wharfage.

(*b*) The terminal has no physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of Main Street.—(*a*) This is a timber-crib earth-filled structure, partly covered at the outer end by a frame building. It has no freight-handling equipment. Length, 317 feet; width at pierhead, 40 feet. Depth of water at pierhead, 7 feet at mean low water; alongside, 7 to 0 feet. The pier is privately owned, and is used in connection with a shipping company. It is adequate for present requirements. Two steamers make daily stops for passengers and freight, and a freight packet carries canned goods and farm produce to the Philadelphia markets. The aggregate yearly tonnage amounts to about 4,000 tons, chiefly canned goods, farm produce, coal, fertilizers, and general merchandise, carried in steamboats, packets, and canal boats. It is a private terminal, but is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

XXXIX. NEW CASTLE, DEL.

Wharf at the upper end of the borough, on the property of the Baldt Steel Casting Co.—(*a*) This is an open pile and timber structure, and has no freight-handling equipment. Length, 550 feet; width at pierhead, 63 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. The pier is used in connection with an industrial plant, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 7,000 tons of molding sand, carried in barges. It is a private terminal, and is not open to water carriers generally.

(*b*) The terminal has no direct physical connection with any railroad, but the Pennsylvania Railroad Co.'s tracks are near by. There is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of Harmony Street.—(*a*) This is a timber-crib earth-filled structure, partly covered at the outer end by a frame

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

building. It has no freight-handling equipment. Length, upper side 370 feet, lower side 250 feet; width at pierhead, 110 feet. Depth of water at pierhead, 1 foot at mean low water; alongside, 1 to 0 feet. The terminal is in a dilapidated condition and has been abandoned for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of Boldens Alley, between Harmony and Delaware streets.—(*a*) This is a pile and timber structure, partly covered at the outer end by small frame buildings. It has no freight-handling equipment. Length, 224 feet; width at pierhead, 68 feet. Depth of water at pierhead, 1 foot at mean low water; alongside, 1 to 0 feet. The pier was formerly used in connection with an industrial establishment, which has been idle for a number of years. It is in a dilapidated condition and has been abandoned for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

Wharf between Boldens Alley and Delaware Street.—(*a*) This is a pile and timber structure, partly covered by a frame shed. It has no freight-handling equipment. Length, 224 feet; width at pierhead, 68 feet. Depth of water at pierhead, 3 feet at mean low water; alongside, 3 to 0 feet. The pier is owned by the Wilmington & Northern Railroad Co., but has been abandoned for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad, but the tracks of the Wilmington & Northern Railroad Co. are nearby.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of Delaware Street.—(*a*) This is a timber-crib earth-filled structure, partly covered by small frame buildings. It has no freight-handling equipment. Length, 253 feet; width at pierhead, 97 feet. Depth of water at pierhead, 4 feet at mean low water; alongside, 4 to 0 feet. The pier is owned by the municipality, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 500 tons, chiefly sand, coal, and fish, carried in small sailing boats and barges. It is a public terminal, and is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf between Delaware and Chestnut Streets, on the property of the Pennsylvania Railroad Co.—(*a*) This is a pile and timber structure, and has no freight-handling equipment. Length, 122 feet; width at pierhead, 47 feet. Depth of water at pierhead, 0 feet at mean low water. The pier was formerly used in connection with the railroad, but is now in ruins and has been abandoned for commercial purposes.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) The roadway leading from the terminal is in bad condition.

Wharf between Market and Chestnut Streets, on the property of the Pennsylvania Railroad Co.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 187 feet; width at pierhead, 55 feet; depth of water at pierhead, 0 feet at mean low water. The pier was formerly used in connection with the railroad, but is now in ruins and has been abandoned for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) The roadway leading from the terminal is in bad condition.

Wharf near the foot of South Third Street, on the property of the Wilmington Gas Co.—(*a*) This is a timber-crib earth-filled structure, partly covered by a brick building. It has no freight-handling equipment. Length, 100 feet; width at pierhead, 65 feet. Depth of water at pierhead, 0 feet at mean low water. The pier was formerly used in connection with a pumping station, but is now in ruins and has been abandoned for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) The roadway leading from the terminal is in bad condition.

Wharf in the southern part of the borough, on the property of the National Tube Co.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equipment. Length, 500 feet; width at pierhead, 50 feet. Depth of water at pierhead, 7½ feet at mean low water; alongside, 7½ to 0 feet. The pier was formerly used in connection with a foundry, which has been idle for a number of years. It is in a dilapidated condition and has been abandoned for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) The roadway leading from the terminal is in bad condition.

Wharf in the extreme southern part of the borough, on the property of the Taylor Dickson estate.—(*a*) This is a pile and timber structure, equipped with a narrow-gauge track. Length, 179 feet; width at pierhead, 8 feet. Depth of water at pierhead, 0 feet at mean low water. The pier was formerly used in connection with a brick-manufacturing plant, which has been idle for a number of years. It is in a dilapidated condition and has been abandoned for commercial purposes.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) The roadway leading from the terminal is in bad condition.

XL. CARNEYS POINT, N. J.

Property of the E. I. du Pont de Nemours Powder Co., described as follows:

Wharf at upper end of property.—(*a*) This is a stone and timber structure, with a small frame building at the outer end. It has no

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

freight-handling equipment. Length, 298 feet; width at pierhead, 52 feet. Depth of water at pierhead, 3 feet at mean low water; alongside, 3 to 0 feet.

Lower wharf, about one-half mile below upper wharf.—(*a*) This is an open pile and timber structure, and has no freight-handling equipment. Length, 81 feet; width at pierhead, 15 feet. Depth of water at pierhead, 0 feet at mean low water.

Both these piers are used in the operation of a powder plant, the former in connection with a carfloat ferry, and the latter to land nitroglycerine. They are adequate for present requirements. A river transportation company's packets make daily stops to receive and discharge freight. The aggregate yearly tonnage amounts to about 80,000 tons, chiefly sand, chemicals, explosives, and miscellaneous articles, carried in packets, carfloats, canal boats, and barges. They are private terminals and are not open to water carriers generally.

(*b*) The terminals have direct physical connection with the Pennsylvania Railroad and the Philadelphia & Reading Railway Cos. The river transportation company has an arrangement with the railroads for interchange of traffic on through freight.

(*c*) There is a good roadway leading from each terminal.

XLI. DELAWARE CITY, DEL.

Wharf near the foot of Clinton Street, north side.—(*a*) This is a timber-crib earth-filled structure, partly covered by a frame building. It is equipped with a boom derrick for handling freight. Length, 370 feet; width at pierhead, 95 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. The pier is used in connection with a coal yard, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 2,500 tons, chiefly coal, lumber, sand, and cement, carried in canal boats and barges. It is a private terminal and is not open to water carriers generally.

(*b*) The terminal has direct physical connection with the Pennsylvania Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of Clinton Street, north side.—(*a*) This is a timber-crib earth-filled structure, partly covered at the outer end by a frame building. It has no freight-handling equipment. Length, upper side, 381 feet; lower side, 159 feet; width at pierhead, 56 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. The pier is owned by James H. Clark, and is adequate for present requirements. It is almost exclusively used by tugs and small craft as a landing place, and has no tonnage. The terminal is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

Wharf at the foot of Clinton Street, south side.—(*a*) This is a timber-crib earth-filled structure, and has no freight-handling equip-

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

ment. Length, 360 feet; width at pierhead, 27 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. The pier is leased to a transportation company whose steamers pass through the Delaware & Chesapeake Canal, which is near by. No commerce passes over the pier, as it is only used for mooring vessels while awaiting passage through the canal. It is a private terminal, and is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

Wharf on the property of the United States, just south of the Delaware & Chesapeake Canal.—(*a*) This is a pile and timber structure, equipped with a stiff-legged derrick for handling freight. Length, 700 feet; width at pierhead, 160 feet. Depth of water at pierhead, 14 feet at mean low water; alongside, 14 to 0 feet. The pier is owned by the United States Quartermaster Department, and is only used to land materials for use at Fort Du Pont, Del.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is a good roadway leading from the terminal.

XLII. PORT PENN, DEL.

Wharf at the foot of Main Street.—(*a*) This is a timber-crib earth-filled structure and has no freight-handling equipment. Length, 175 feet; width at pierhead, 26 feet. Depth of water at pierhead, 1 foot at mean low water; alongside, 1 to 0 feet. The pier is owned by Henry Cleaver and is in a dilapidated condition. The aggregate yearly tonnage amounts to about 1,500 tons, chiefly grain, coal, and farm produce carried in barges and small sailing craft. It is a private terminal, but is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad and there is no arrangement for interchange of traffic on through freight.

(*c*) The roadway leading from the terminal is in bad condition.

Wharf about 600 feet below Main Street.—(*a*) This is an open pile and timber structure and has no freight-handling equipment. Length, 631 feet; width at pierhead, 31 feet. Depth of water at pierhead, 2½ feet at mean low water; alongside, 2½ to 0 feet. The pier is used during the summer months by a steamboat company to land and discharge passengers for a pleasure park and is adequate for present requirements. No commerce passes over the pier. It is a private terminal, but is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) The roadway leading from the terminal is in poor condition.

XLIII. AUGUSTINE PIER, DEL.

Wharf at the foot of a roadway leading to Augustine Park.—(*a*) This is an open pile and timber structure and has no freight-handling

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

equipment. Length, 239 feet; width at pierhead, 40 feet. Depth of water at pierhead, 10 feet at mean low water; alongside, 10 to 0 feet. The pier is principally used during the summer months to land passengers for Augustine Park and is adequate for present requirements. A freight packet makes daily stops to receive and discharge freight. The aggregate yearly tonnage amounts to about 1,500 tons, chiefly grain, farm produce, and miscellaneous articles carried in steam packets. It is a private terminal and is not open to other water carriers.

(*b*) The terminal has no direct physical connection with any railroad and there is no arrangement for interchange of traffic on through freight.

(*c*) There is a good roadway leading from the terminal.

XLIV. BOMBAY HOOK, DEL.

Wharf on the property of the Woodland Beach Park Amusement Co.—(*a*) This is an open pile and timber structure, and has no freight-handling equipment. Length, 747 feet; width at pierhead, 27 feet. Depth of water at pierhead, 6 feet at mean low water; alongside, 6 to 0 feet. The pier is used exclusively by steamboats to land passengers for Woodland Beach Park, and no freight is carried.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is no roadway leading to the terminal and it can only be reached by a footpath.

XLV. BAYSIDE, N. J.

Wharf located on the property of the Philadelphia & Reading Railway Co., near the mouth of the Cohansey River.—(*a*) This is an open pile and timber structure, partly covered by a frame building. It has no freight-handling equipment. Length, 31 feet; width at pierhead, 121 feet. Depth of water at pierhead, 3 feet at mean low water; alongside, 3 to 0 feet. The pier is used in connection with the railroad, and during the fishing season fish from small fishing boats is landed for quick delivery by railroads to the markets. The aggregate yearly tonnage amounts to about 3,500 tons of fish, which is carried in skiffs and gasoline launches.

(*b*) The terminal has direct physical connection with the Philadelphia & Reading Railway Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) There is no roadway leading from the terminal and it can only be reached by a footpath and the railroad.

XLVI. LEWES, DEL.

Wharf near the foot of South Street, South Side.—(*a*) This is an open pile and timber structure, partly covered at the outer end by frame buildings. It has no freight-handling equipment. Length, 1,200 feet; width at pierhead, 47 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. The pier is owned

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

by the Maryland, Delaware & Virginia Railroad Co. It is open to all vessels desiring to load coal, and no wharfage is charged such vessels. The terminal is adequate for present requirements. The aggregate yearly tonnage amounts to about 5,000 tons of coal, which is carried in canal boats and barges.

(*b*) The terminal has direct physical connection with the Maryland, Delaware & Virginia Railroad Co., but there is no arrangement for interchange of traffic on through freight.

(*c*) The roadway leading from the terminal is in poor condition.

Wharf about a quarter of a mile below South Street, on the property of the Lewes Fisheries Co.—(*a*) This is an open pile and timber structure, partly covered at its outer end by frame buildings. It is equipped with a steam hoist for handling coal and a mechanical scoop and elevator for unloading fish from vessels. Length, 1,200 feet; width at pierhead, 40 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. The pier is used in connection with a fish factory, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 17,000 tons, chiefly coal, fish, fish scraps, and oil, which is carried on steamers, sailing vessels, barges, and canal boats. It is a private terminal, but is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) The roadway leading from the terminal is in poor condition.

Wharf on the property of the Delaware Fish Oil Co., between the property of the Lewes Fisheries Co. and the United States Iron Pier.—(*a*) This is an open pile and timber structure, partly covered at the outer end by a frame building. It is equipped with a hoist for handling coal and mechanical scoops and elevators for unloading fish from vessels. Length, about 1,300 feet; width at pierhead, 40 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. The pier is used in connection with a fish factory, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 9,000 tons, chiefly coal, fish, fish scraps, and oil, which is carried in steamers, sailing vessels, barges, and canal boats. It is a private terminal, but is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) The roadway leading from the terminal is in poor condition.

Wharf on the property of the Delaware Fish Oil Co., between the property of the Lewes Fisheries Co. and the United States Iron Pier.—(*a*) This is an open pile and timber structure, partly covered at the outer end by a frame building. It is equipped with a hoist for handling coal and mechanical scoops and elevators for unloading fish from vessels. Length, about 1,300 feet; width at pierhead, 50 feet. Depth of water at pierhead, 12 feet at mean low water; alongside, 12 to 0 feet. The pier is used in connection with a fish factory, and is adequate for present requirements. The aggregate yearly tonnage amounts to about 9,000 tons, chiefly coal, fish, fish

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

scraps, and oil, which is carried in steamers, sailing vessels, barges, and canal boats. It is a private terminal, but is open to all water carriers on payment of wharfage.

(*b*) The terminal has no direct physical connection with any railroad, and there is no arrangement for interchange of traffic on through freight.

(*c*) The roadway leading from the terminal is in poor condition.

Wharf at the lower end of the borough.—(*a*) This pier has a substructure of wrought-iron screw piles and a timber superstructure. It has no freight-handling equipment. Length, 1,701 feet; width at pierhead, 42 feet. Depth of water at pierhead, 18 feet at mean low water; alongside, 18 to 0 feet. The pier is owned by the United States, and is used by the lighthouse department for storage of material, the life-saving station for their boats, and by parties from vessels in the harbor desiring to communicate with the shore. There is no commerce over the pier. The terminal is open to all water carriers, and no charge is made for wharfage.

(*b*) The terminal has no direct physical connection with any railroad.

(*c*) There is no roadway leading from the terminal.

There being water terminals at various points on the Delaware River whose efficiency has been reported upon above, there appears to be no occasion for an expression of opinion under the heading (*d*) of the act of July 25, 1912.

While existing terminals are generally adequate for present commerce, it may be stated that some of those within the limits of Philadelphia's active water front are unduly congested with traffic, which is rapidly increasing, and improved terminal facilities are needed.

The customary wharfage charges at the port of Philadelphia are from one-half to 1 cent per ton per day for the first 300 tons net register of vessels, and from one-half to three-quarters of a cent for each additional net register ton above 300.

There are three blue prints accompanying this report, showing the number and locations of piers at the three principal cities along the Delaware River, namely, Philadelphia, Camden, and Chester.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

REPORT OF MAJ. R. R. RAYMOND, CORPS OF ENGINEERS, OF THE WILMINGTON, DEL., DISTRICT.

(a) The general location and description of water terminals and the extent and method of their use by water carriers and their general efficiency, and whether open to use by all water carriers on equal terms, and such information as may be accessible as to the terms and conditions of use.

(b) Whether physical connection exists between such water terminals and the railroad or railroads serving the same territory or municipality, and also whether there exists between any of the water carriers operating upon waters under improvement or heretofore improved and any railroad or railroads a mutual contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(c) Whether improved and adequate highways have been constructed to each water terminal.

(d) If no water terminals exist there shall be included an opinion in general terms as to the necessity, number, and appropriate location of terminals upon such waters.

RANCOCAS RIVER, N. J.

(a)	(b)	(c)	(d)
Wharf at Riverside belonging to Geo. R. Van Sciver, for his private use.	No connection with any railroad, or other boat line.	Good road to railroad station.	
Two wharves at Bridgeboro, belonging to Geo. R. Van Sciver, for his private use; one on upper and one on lower side of drawbridge.	.....do.....	Good road into town....	
Sand wharf, 2 miles below Centerton; owned by James Stokes; open to public for use free of charge.	No railroad connection; used only for loading and unloading sand on river.	No road from wharf.....	
Three wharves at Centerton, one lower side of bridge, belonging to J. W. Paxson Co.; private.	.....do.....	Road into town.....	
Wharf at Centerton above bridge, belonging to J. W. Paxson Co.	.....do.....	.....do.....	
Wharf 3 or 4 miles above Centerton, on Lumberton Branch, belonging to De Frain Sand Co.; private wharf.	.....do.....	.....	
Two wharves about ½ mile above De Frain Sand Co.'s wharf; private, belonging to J. W. Paxson Co.	.....do.....	.....	
Reynolds & Johnson foundry wharf, on lower side of bridge at Hainesport; private.	No direct connection with railroads.	Good road to town.....	
Van Sciver's wharf, at Hainesport, above the bridge; private wharf.	.....do.....	.....do.....	

COOPER RIVER, N. J.

(a)	(b)	(c)	(d)
WEST OR SOUTH SIDE.			
Highland Worsted Mills; bulkhead 305 feet long. Orford Copper Co., bulkhead 720 feet long. General Chemical Co.; bulkhead about 750 feet long. R. Z. Graves & Co.; bulkhead about 700 feet long. Camden Lime Co.; bulkhead about 150 feet long. N. D. Wood & Co.; bulkhead 1,500 feet long; a modern concrete structure, just completed. Mechling Bros. Manufacturing Co.; bulkhead 204 feet long. Camden Lime Co.; bulkhead 215 feet long. Justice Coal & Lime Co.; bulkhead 107 feet long. Wilckes, Martin, Wilckes Co.; bulkhead 180 feet long.	The R. D. Wood & Co. bulkhead is the only one now provided with railroad facilities, but when depth of water is secured the following bulkheads can be provided with railroad facilities very readily: Mechling Bros. Manufacturing Co.; Camden Lime Co.; Justice Coal & Lime Co.; Wilckes, Martin, Wilckes Co. There are no transportation companies operating regularly on this river. The railroads have an arrangement whereby they send lighters for freight from the industries on this river.	The approach to the Camden city property is adequate.	As at present constituted on the Cooper River, all of the industries have adequate wharfage, and only need deeper water to secure the particular benefits of water transportation. There is no necessity for additional public terminals.

MANTUA CREEK, N. J.

Wharf of I. P. Thomas & Son Co., at mouth on west side of river; private, but sometimes used by the public. No wharfage charged.	No direct connection with railroad. All shipments are either made by water or are hauled over good roads to Paulsboro Railroad station.	Good road to wharf.....	
PAULSBORO, N. J.			
Wharf of New York & Philadelphia Packing Co.; private; can not be used by the public.	Railroad siding runs to this wharf.	.....	
Wharf of Charles Lodge on west side of creek; public, but wharfage is charged.	Has no railroad connection.	All the wharves named have the best kind of roads.	
Wharf of E. G. Miller (lumberman), on west side of creek; private; no wharfage charged.	.....do.....	.....	
Wharf of Lodge Bros. on west side of creek; public; no wharfage charged.	.....do.....	.....	
Wharf of John Lodge on west side of creek; public; no wharfage charged.	.....do.....	.....	
Wharf of Murray Bros. on east side of creek; public; no wharfage charged.	.....do.....	.....	
Wharf of Wilson D. Gill, on west side of creek; public; no wharfage charged.	.....do.....	.....	
MOUNT ROYAL, N. J.			
Craigs' wharf for sand and gravel; 1 mile below Mount Royal; operated by private parties.	No railroad connections.	No road.....	
Hoffman's wharf in town of Mount Royal; public; a fixed charge to all for landing.	.....do.....	Good roads.....	
Green's coal and lumber wharf; public; a fixed charge for landing.	.....do.....	.....do.....	Would like to have the railroad also in connection.
Tatin's wharf 1 mile up the river from Mount Royal; public; equal charge to all for landing.	.....do.....	.....do.....	

MANTUA CREEK, N. J.—Continued.

(a)	(b)	(c)	(d)
MOUNT ROYAL, N. J.—continued.			
Cook's wharf, 1½ miles up the creek from Mount Royal; public; equal charge to all for landing.	No railroad connections.	Good roads	
Lodge's wharf, 1¾ miles up the creek from Mount Royal; public; a fixed charge for landing.	No railroad connections.	Poor roads	
MANTUA, N. J.			
Dock of Job Scott, south side of Mantua Creek, at head of navigation; private, but open to the public free of all charges.	No direct connections with railroad; railroad station 1 mile away; no arrangement for interchange of traffic.	There are no good roads to make connections with railroad.	
Private wharf on northeast side of creek at head of navigation, owned by Chew Bros.			
Both of the above wharves are open to all water carriers on equal terms.			

RACCOON CREEK, N. J.

BRIDGEPORT, N. J.			
Wharf of Peter Carey at Bridgeport; private, but open to use of public on equal terms on payment of wharfage, or free to small boats for landing.	No direct connection with railroad; railroad station near by No arrangement for interchange of traffic, other than the roads.	A good roadway exists from wharf to main roads.	The condition of wharves at Bridgeport is very good; the only disadvantage is at the mouth, which seems to be filling in.
Geo. Irons' wharf; same as above.	do	do	
W. H. Bechery's wharf; same as above.	do	do	
G. H. Platt's wharf; same as above.	do	do	
Wm. H. Lawrence's wharf; same as above.	do	do	
Hugh McGlincy's wharf; same as above.	do	do	
John D. Norton's wharf; same as above.	do	do	
SWEDESBORO, N. J.			
Dock of Wm. Rode, head of navigation; private, but open to use by public on equal terms on payment of tolls.	No direct physical connection with railroads from the docks; railroad station near by by good roads. No arrangement for interchange of traffic.	A good roadway exists from all docks to make connections with the railroad.	There is a water terminal, but in a few months after dredging it becomes filled with sand, so that boats are unable to dock at low tide.
Dock of Howard Haum, head of navigation; private, but open to use by public on equal terms on payment of tolls.	do	do	It is the opinion that if the creek were dredged one-fourth mile farther up it would do away with the drifting of sand and make the stream navigable at all times.
Dock of Wm. Rode, about two squares below rail road; private, but open to public on equal terms on payment of tolls.	do	do	
Dock of Charles Conner, below railroad bridge; private, but open to public on equal terms on payment of tolls.	do	do	

RACCOON CREEK, N. J.—Continued.

(a)	(b)	(c)	(d)
SWEDESBORO, N. J.—continued.			
Dock of South Jersey Glass Works; no road leading to this landing, as it is strictly private and used by the company to unload oil.	No direct physical connection with railroads from the docks; railroad station near by by good roads. No arrangement for interchange of traffic.	A good roadway exists from all docks to make connections with the railroads.	
Dock of B. A. Headley, one-half mile from main road; private, but open to public on equal terms on payment of tolls.	do	do	
Dock of Wm. Glutting, 1 mile below main road; private.	do	do	
Dock of Martin Shorn, 1½ miles below main road; private.	do	do	
Dock of Emil Korntopp, 2 miles below main road; private.	do	do	
Dock of John Gulegoskey, 2½ miles below main road; private.	do	do	
Dock of Wm. Ferrel, 3 miles below main road; private.	do	do	
Dock of Edward Springer, 5 miles below main road; private, but open to use by public on payment of tolls; the road leading to this dock is directly through Mr. Springer's farm and is used by a great many farmers, but kept up by Mr. Springer himself.	do	do	
Dock of Mr. Kirkley, 5½ miles below main road; private.	do	do	
Dock of John Kirby, 9 miles below main road; private.	do	do	

OLDMANS CREEK, N. J.

(a)	(b)	(c)	(d)
Carney's wharf, along Swedesboro Road, at head of navigation at Auburn, on east side; private; open to public on equal terms to all.	No arrangement for interchange of traffic. Four miles by road to nearest railroad, at Swedesboro.	Adequate highways.....	
Selak's wharf, at Auburn, on west side of river; private, but open to public on equal terms to all.	.....do.....	.....do.....	
Turner's wharf, on east side of river; private; open to all on equal terms.	.....do.....	.....do.....	
Tighe's wharf, on west side of river; private; open to all on equal terms.	No connection. Nearest railroad 4 miles to Pedricktown.	.....do.....	
Rode's wharf, on east side of river; private; open to all on equal terms.	No connection with railroad, which is 5 miles away, at Swedesboro.	.....do.....	
Lane's wharf, on west side of river; private; open to all on equal terms.	No connection with railroad, which is 4 miles to Pedricktown.	.....do.....	
Haine's wharf, on east side of river; private; open to all on equal terms.	No connection with railroad, which is 5 miles to Swedesboro.	.....do.....	
Rode's wharf, below Haine's wharf, on east side of river; private; open to all on equal terms.	.....do.....	.....do.....	
A. Selcraft's wharf, on east side of river; open to all on equal terms.	.....do.....	.....do.....	
Lippincott's wharf, on west side of river; open to all on equal terms.	Railroad about 3 miles away, at Pedricktown.	.....do.....	
Spark's wharf, on west side of river; open to all on equal terms.	Railroad station at Pedricktown, 3 miles away.	Adequate roads.	
Weatherby's wharf, on east side of river; open to all on equal terms.	Railroad station at Pedricktown, 4 miles away.	.....do.....	
Wright's wharf, at Pedricktown; not open to public.	Railroad station in town.	.....do.....	
Justice's wharf, at Pedricktown; not open to public.	.....do.....	.....do.....	
Green's wharf, 2 miles below Pedricktown; open to all on equal terms.	Road to railroad station at Pedricktown.	.....do.....	

SALEM RIVER, N. J.

(a)	(b)	(c)	(d)
MAIN STREAM.			
Wharf of Salem Freight Co.; private boats of this company connect with all railroads and steamship lines running out of or into Philadelphia and other points along Delaware River, Baltimore, etc.	Railroad siding passes through one side of property; no arrangement for interchange of traffic.	An improved and adequate highway extends to this wharf....	
Gayner Glass Works Wharf; private.	.....do.....	.....do.....	
City of Salem wharf; public.	.....do.....	.....do.....	
Bridgeton Condensed Milk Co.; private; leased by Salem Freight Co., who allow other boats to use it upon payment of wharfage.	.....do.....	.....do.....	
West Jersey & Seashore R. R. wharf; private, but not improved for use.			
Wharf of F. H. Lloyd; private, but open to the public.	.....do.....	.....do.....	
Wharf of L. P. Plummer; private, but open to public.	.....do.....	.....do.....	
BRANCH OF SALEM RIVER.			
H J. Heinz Co.'s wharf; private.	.....do.....	.....do.....	
Salem Glass Works; private wharf.	.....do.....	.....do.....	
Wharf of Sinnickson-Mitchell Co. (formerly Sherron); private.	Railroad siding passes through this plant.	.....do.....	
Salem Electric Co.'s wharf; private.	.....do.....	.....do.....	
Wharf of O. L. Jones estate; private; part bulkheaded, but larger part not.	Railroad siding adjoins part of this wharf.	.....do.....	
Wharf of Standard Oil Co.; private.	Railroad siding near by..	An improved and adequate highway extends to this wharf.	
Wharf of J. K. Waddington; private.	Railroad siding adjoins..	.....do.....	
Anna C. L. Gaunt; private wharf; occupied by C. G. Lippincott.	.....do.....	.....do.....	
Wharf of city of Salem, at foot of Market Street; public.	.....do.....	.....do.....	
Wharf of R. N. Vanneman on opposite side of river from J. K. Waddington; used by the public.	No railroad on his side of the river.	.....do.....	

ALLOWAY CREEK, N. J.

(a)	(b)	(c)	(d)
QUINTON, N. J.			
Wharf at foot of Main Street; owners, Quinton Glass Co.; open to public on equal terms.	Direct physical connection with railroad from both the wharves, but no traffic arrangement with railroads.	A good roadway from both wharves.	
Wharf at Water Works Street, Fogg & Hires Co., owners; open to public on equal terms; wharf about 100 feet long.			
HANCOCK BRIDGE, N. J.			
Fogg & Hires Co.; private wharf at canning factory, about 200 feet long.	No connection with railroads.	Good roads.....	
J. K. Waddington's wharf; open to the public on equal terms; about 200 feet long.			
Fogg & Hires Co.'s wharf, about 200 feet long; open to public on equal terms.			
Edmund Shimp Co.'s wharf, about 200 feet long; open to public on equal terms.			

COHANSEY RIVER, N. J.

EAST SIDE.			
Wharf of Bridgeton & Millville Traction Co., south of Washington Street, and west of Cohansey Street; private; used for unloading coal.	At present no direct physical connection with railroad; railroad siding planned, to be built soon; railroad station near by. No arrangement for interchange of traffic.	Traction company's power house fronts on same street as railroad station and connection between the two is by paved city street.	
Elmer's wharf; adjoins traction company's wharf on south, and fronts on Cohansey Street; open to public on equal terms, but is suitable only for light-draft vessels.	No connection with railroad.	Property fronts on Cohansey Street and has same connection with railroad station as above.	
David P. Mulford's wharf, west of South Laurel Street; private wharf for coal yard.	.....do.....	No street frontage; access to street by lane, which connects with paved city streets to nearby railroad stations.	
Nixon's wharf, corner South Laurel and Jefferson Streets; open to public at large on equal terms; used principally for outbound shipments of farm produce and inbound shipments of fertilizer; adequate for these requirements.	No direct physical connection with railroad; railroad stations near by; no arrangement for interchange of traffic.	Paved city streets connect this property with two railroad stations.	
Buck's wharf, south of Jefferson Street, west of South Laurel Street; public; used principally by pleasure craft, occasionally by lumber boats.	No railroad connection except via streets.	Property fronts on city streets.	
Coombe's wharf, south of Buck's wharf; private for coal yard.	.....do.....	.....do.....	

COHANSEY RIVER, N. J.—Continued.

(a)	(b)	(c)	(d)
EAST SIDE—continued.			
Frazeur's wharf, south of Coombe's wharf; private for lime kiln.	No railroad connection except via streets.	Property fronts on city streets.	
Grosscup & Sons' wharf, south of Glass Street; private; used for lumberyard; public may use it for a reasonable charge.	Siding of West Jersey & Seashore R. R. Co. is laid in lumberyard, but there is no regular interchange of traffic, although physically possible and commercially practicable.	No roadway to this wharf.	
Hettinger's wharf, west of Grove Street; private; this is used principally by motor boats landing for repairs at Hettinger's Engine Works, and also for supply of gasoline.	Siding of West Jersey & Seashore R. R. Co. crosses this property; no regular interchange of traffic.	The engine works is located on a public street, but there is no road or street to the wharf.	
Standard Oil Co.'s wharf, west of South Avenue; private; landing place for oil barges of owner and for motor boats for purchase of gasoline.	No direct railroad connection.	No roadway to this wharf.	
WEST SIDE.			
City of Bridgeton's wharf; private; intended for landing coal for use of new water plant, can not be reached by coal barges because of obstructions to navigation.	Has railroad siding on same property, north of water works, where coal and supplies are now delivered.	No roadway; water plant is located in city park.	
E. Boon & Johnson Bros. wharf; private; used for unloading grain at gristmill.	No railroad connection except via streets.	Property fronts on park entrance, thence to city streets.	
Sheppard's wharf; private; for coal yard and grain merchant.	.....do.....	Property fronts on paved city streets.	
Frank H. Gibson's wharf; private; used by motor boats landing for repairs at Gibson's machine shop.	.....do.....	.....do.....	
Commercial League Corporation's wharf; used by tenants of owners and by public occasionally; no charge has ever been made for such use.	.....do.....	.....do.....	
Feinstein & Serata's wharf; private; south side of Broad Street, east of Water Street; occasionally used for unloading grain, coal, and fertilizer for owner.	Central R. R. Co. of New Jersey has branch line running across this and all wharves hereinafter named; on this wharf track is elevated over coal trestle; no regular interchange of of business.	.....do.....	
John E. Minch's wharf; private; east side of Water Street, adjoining above wharf; used by owner for unloading merchandise, coal, grain, and fertilizer.	.....do.....	.....do.....	
Bridgeton Gas Light Co.'s wharf; south of above; private; used for unloading coal and shipments of coal tar for owner.	.....do.....	.....do.....	
City of Bridgeton's wharf, south of above wharf; public; seldom used.	Above-named branch railroad crosses at grade.	This a street end.....	

COHANSEY RIVER, N. J.—Continued.

(a)	(b)	(c)	(d)
WEST SIDE—continued.			
Jerrell & Sons' wharf, south side of Vine Street, east side of Water Street; private; used to unload coal and ice for owner; public uses same when taking on ice for pleasure yachts, etc; no charge	Railroad crosses at grade; no interchange of business; such interchange feasible if desired.	Property fronts on two city streets.	
Wm. Laning & Son's wharf, south of above; private; used by owner for shipments of canned goods, etc.; public may use it by paying a reasonable wharfage.	.....do.....	Property fronts on paved city street.	
Cox & Sons' Co. wharf, adjoining above; private; not open to the public.	.....do.....	.....do.....	

MAURICE RIVER, N. J.

MILLVILLE, N. J.			
Wharf of Millville Manufacturing Co.; private, but open to public on payment of wharfage.	Railroad siding close to wharf; no arrangement for interchange of traffic.	Good roads from all the wharves in Millville to railroad station.	
Whitall, Tatum & Co.'s wharf; private, but open to public on payment of wharfage.	.....do.....	.....do.....	
S. F. Reeves's wharf; private, but open to public on payment of wharfage.	.....do.....	.....do.....	
S. F. Mayhew's wharf; private, but open to public on payment of wharfage.	.....do.....	.....do.....	
Thomas Simmons's wharf; private only.	No railroad connection.	.....do.....	
Chas. P. Esabil's wharf; private, but open to public on payment of wharfage; this is the principal wharf in Millville for the oyster boats and other small vessels.	No railroad connection except by teams.	.....do.....	
From 2¾ to 4¼ miles down the river are sand wharves of F. L. Mulford, Silver Run wharf, Key's upper and Key's lower wharves, and Ferguson's wharf; these are all private, and are used by the sand companies in that section.	No arrangement for interchange of traffic.	No roads in immediate vicinity.	
DORCHESTER, N. J.			
Wharf of Shaw & Champion; private, but open to public.	.....do.....	Good roads in vicinity..	
Wharf of Charles Stowman; private, but open to public.	.....do.....	.....do.....	
LEESBURG, N. J.			
Wharf of Howard Compton; private, but open to public.	.....do.....	.....do.....	

MAURICE RIVER, N. J.—Continued.

(a)	(b)	(c)	(d)
MAURICETOWN, N. J.			
Wharf of E. J. Vanaman; private, but open to public.	No arrangement for interchange of traffic.	Good roads in vicinity..	
Albert Lupton's wharf; private, but open to public.	.....do.....	.....do.....	
Wharf of Seth Bowen; private, but open to public. (Bowen dead; present owner unknown.)	.....do.....	.....do.....	
Wharf of David Haley; private, but open to public. (Haley dead; present owner unknown.)	.....do.....	.....do.....	
BIVALVE, N. J.			
Wharf of Harry Stowman; private, but open to public.	No arrangement for interchange of traffic, except between the Central R. R. of New Jersey and the Pennsylvania R. R. at the oyster piers.	.....do.....	
Platform of Bridgeton & Port Norris Railway Co. (electric).	.....do.....	.....do.....	
18 oyster piers and docks of the Central R. R. of New Jersey; owned by Central R. R. of New Jersey, but open to public.	.....do.....	.....do.....	
MAURICE RIVER, N. J. (OPPOSITE BIVALVE).			
13 oyster piers and docks of the West Jersey & Seashore R. R. Co.; open to public.	.....do.....	No highway in connection with wharves except poor road across meadows.	
PORT NORRIS, N. J.			
Wharf of John Hand estate; private, but open to public on payment of wharfage.	No arrangement for interchange of traffic.	Good road from wharf to town of Port Norris, about ½ mile distant.	

COLD SPRING INLET, N. J.

(a)	(b)	(c)	(d)
Dock of Sewell's Point Amusement Co., N. Z. Graves, proprietor, located at Sewell's Point, at entrance to easterly end of harbor; private, but open to use of public on equal terms; free of all charge to private boats, but passenger boats are charged dockage fee for each passenger leaving the dock.	Wharf is in front of large amusement building, and is connected with tracks of the Cape May, Delaware Bay & Sewell's Point R. R. Co., a steam railroad, connecting with the Atlantic City R. R. Co., and West Jersey & Seashore R. R., and which is also operated as a trolley road. No arrangement for interchange of traffic except for freight. The freight traffic is leased to the Atlantic City R. R. on a basis of percentage of profits.	A good roadway exists from the dock to make connection with railroad and trolley, also connects with 100-foot road and 20-foot boardwalk running along beach front for a distance of about 5 miles.	Upon completion of the Cape May Harbor, it will be necessary to have a large dock built out into deep water in the harbor for the accommodation of large boats drawing over 10 feet of water.
Wharf on north side of harbor at terminus of tracks of Atlantic City R. R.; private dock, but open to use of public free of charge.	Wharf of Cape May Real Estate Co. on north side of harbor makes direct connection with tracks of Atlantic City R. R. No traffic arrangement.	A good roadway exists from wharf to make connections with railroad and trolley at head of Schellenger's Landing.	
Wharf of Cape May Yacht Club at Schellenger's Landing, western end of harbor; private; this is a large floating wharf used for landing sail and pleasure boats.	Wharf connects with tracks of Ocean Street Passenger Ry., a trolley system.	A good roadway exists from wharf to make connections with railroad and other transportation lines.	
Coal trestle erected by the Atlantic City R. R. Co., on land leased from the Cape May Real Estate Co. at Schellenger's Landing on northwestern end of harbor; connects with tracks of Atlantic R. R. Co. No charges.	No traffic arrangements.	.....	

ABSECON INLET, N. J

Yachtmen's wharf, 15 by 350 feet. Brigantine wharf, 30 by 225 feet. Warren Webster & Co. (Gardners Basin), 500 feet water frontage, Rhode Island and Melrose Avenues; public for wharfage charge. Atlantic City Transportation Co., 300 by 80 feet, head of New Jersey Avenue. Somers Lumber Co. Missouri and Thoroughfare Avenues. Produce wharf, 50 by 20 feet, Florida Avenue and Thoroughfare; public for wharfage charge.	Railroad terminals are in center of city and not connected with water terminals. The trolley lines connect with inlet for passenger traffic. No contracts for interchange of traffic. Water transportation is a new proposition. Water commerce steadily increasing.	Most all terminals named have good roads save the avenue leading to wharves of Atlantic City Transportation Co.; a gravel road is now in course of construction on New Jersey Avenue.	Atlantic City-Absecon Inlet terminals all on water; mostly private; few designated are public.
City public wharf, 150 by 40 feet; Missouri Avenue and Thoroughfare; wharfage charged.	.....	.....	
Electric-light station, 200 by 20 feet; Missouri Avenue and Thoroughfare.	.....	.....	

ABSECON CREEK, N. J.

(a)	(b)	(c)	(d)
Faunces Landing; wharf foot of Faunces Landing Road; open to public on equal terms free of charge or payment of tolls; adequate for present requirements only; area of this wharf about ¼ acre.	Makes no direct connection with railroad station, which is 1 mile away.	Wharf and highway to railroad connections sufficient.	The 3 docks mentioned are water covered whenever the tides come in above normal. If any straightening is done within the creek I would suggest the material be placed on the docks.
Public landing wharf, foot of Church Street, and is street terminal at water's edge; improved and wharfed 90 feet along water front; open to public on equal terms; adequate for all requirements.	No physical connection with railroad. No arrangement for interchange of traffic. Railroad station ½ mile away.	A good improved highway from dock to railroad station.	
Reed's wharf, terminal of Reeds Road; the wharf extends 2 rods along water front; this is a city wharf, open at all times to all water carriers on equal terms; adequate for present requirements.	This wharf is classed as the others above, there being no contract with railroad for prorating. Station 1½ miles away.	Highway improved and in good condition for traffic.	

TUCKERTON CREEK, N. J.

Dock of Tuckerton Manufacturing Co., head of Tuckerton Creek (east side); private, but general public is allowed free loading and discharging on equal terms.	No physical connections exist between any of these docks and any railroad; no arrangement for interchange of traffic.	Good roadways have been constructed to all the public docks and are being built to the private docks.	Since the dredging of the creek the docks have been and are being constructed to meet the growing requirements.
Dock of Tuckerton Manufacturing Co. (in construction) on basin dredged especially for this purpose; about 450 feet below head of creek on west side; private charges will be made for its use.	.....	.....	
Willow Landing, about 500 feet below head of creek (east side); public.	.....	.....	
Wharf of J. J. Pharo and M. L. Ward, about 600 feet below head of creek, west side; private.	.....	.....	
Scow Landing, about three-eighth mile below head of creek; public.	.....	.....	
West Tuckerton Landing, about one-half mile below head of creek; public.	.....	.....	
Shell Landing, about 1 mile below head of creek; public.	.....	.....	

DOUBLE CREEK, N. J.

(a)	(b)	(c)	(d)
Public wharf at bridge; open to the public at all times free of charge. Private wharves of Henry Carter, Jos. Ridgeway, Ezra Parker, and several others at the bridge, or first landing, are all open to the public free of charge. Public wharf at mouth of creek, open to public at all times, free of charge.	No direct physical connection with railroads from the docks, but railroad station is near at hand over very good roads; makes direct connection with Pennsylvania R. R. and Central R. R. of New Jersey, upon contract for prorating. Conditions for transfer of passengers and freight very good.	Very good highways exist, which are kept in good repair by township of Union, Ocean County, N. J.	Fair water terminals exist, but could be used to better advantage if a little more dredging could be done by the Government. Conditions have been improved since the last dredging. Work done by private parties has been greatly beneficial to the public and much appreciated.
Private wharves of Howard Perrine and Geo. W. Hollingsworth, at mouth of creek; open to the public free of charge.	.....	.....	.....

TOMS RIVER, N. J.

Public dock all around island between bridges on Main Street open to all free of charge.	No connection with railroad; two packets run from it in summer to Sea Side Park and points between.	Dock is within few hundred feet of Central R. R. of New Jersey station for freight, with good road.	In the sense of actual freight terminals in active operation there are none.
Foot of Horner Street just below Kirk boat shop; the public has bought 90 feet front for dock; it will be open to all free of charge.	.....do.....	Good roads.....	
Central R. R. of New Jersey has long frontage parallel with their track at depot; heretofore have not charged wharfage; announce they will now.	.....do.....	.....do.....	
Public wharf at Island Heights on north side of river below the town.	.....do.....	.....do.....	
Two public docks at foot of Central Avenue, south side of river.	.....do.....	.....do.....	
Public dock at Pine Beach, south side of river.	.....do.....	.....do.....	

WILMINGTON HARBOR AND CHRISTIANA RIVER, DEL.

WILMINGTON, DEL.			
Philadelphia, Baltimore & Washington R. R. wharf on south side of river, foot of B Street; limited use for transfer from rail to water.	Open to all for such on equal terms; connection exists, but only in fair condition, little demand for its use; no prorating.	Adequate highway has been provided.	
Enoch Moore & Sons' wharf, on south side of river below the foot of Commerce Street; used principally by Munn & Sons for shipyard purposes, in constructing metal and other life boats.	Open to public on equal terms; no public demand for its use, however; no railroad connection and no prorating.	Good highway.....	
Atlantic Refining Co.'s wharf, adjoining Enoch Moore's; used only by Atlantic Refining Co. for the sale of gasoline.	No use to the public for freighting; no rail connection.	Up-to-date highway.....	

WILMINGTON HARBOR AND CHRISTIANA RIVER, DEL.—Continued.

(a)	(b)	(c)	(d)
WILMINGTON, DEL.—con.			
Wilmington water department wharf, south side of river, continuation of Wilson & Green's wharf; open to public upon payment of reasonable wharf charges.	No railroad connection..	Good road and improved city street.	
Baltimore & Ohio R. R. Co. wharf, north side of river from Market, to west of Shipley Streets; open to public use upon payment of reasonable wharfage.	Railroad connection; no prorating agreement.	Improved city streets...	
F. Blumenthal & Co. wharf, from Baltimore & Ohio R. R. Co.'s wharf to west side of Orange Street.	.....do.....	.....do.....	
J. Morton Poole wharf, north side of river, west from Orange Street; so situated and surrounded by shops as to be available only to owners.	.....do.....	.....do.....	
City wharf, foot of Tatnall street; leased to S. G. Simmons & Bro.; no public use.	.....do.....	Good road and city streets.	
Harlan & Hollingsworth Corporation wharves, from Tatnall Street to Baltimore & Ohio R. R., on north side of river; available only for use of the shipyards.	.....do.....	Good improved roads...	
Wilmington & Northern R. R. Co. wharf, on north side of river, 400 feet above Baltimore & Ohio R. R.; open to public on equal terms, but not used by public because of remote location.	.....do.....	Rather poor road leading to this wharf.	
Delaware Mills, Jessup & Moore Paper Co. wharf, on north side of river, about 1,000 feet below cut-off bridge No. 4; of no use to public, being too remote from the city.	.....do.....	Good highway.....	
E. I. duPont de Nemours wharf, about 1,500 feet below Delaware R. R. bridge; has not been used for any purpose by anyone for many years.	No railroad connection..	Almost no highway leading to this wharf.	
NEWPORT, DEL.			
J. G. Justis Co. wharf, on north side of river at Newport; in poor condition; open to public use on equal terms to all.	No direct railroad connections.	Ordinary highway.....	
CHRISTIANA VILLAGE.			
American Brick Co. wharf, north side of river, about 1½ miles below Christiana village; very temporary structure, of use to brick company only.	No railroad connection..	Poor country road.....	
Christiana village, north side of river; almost unsafe for use.	.....do.....	.....do.....	

APPOQUINIMINK RIVER, DEL.

(a)	(b)	(c)	(d)
Watkins wharf, foot of Main Street, at Odessa, Del.; open to public without charge.	No connection or contract with any railroad; steamboat line plies regularly between Philadelphia, Pa., and Odessa, Del.	Highway from wharf....	
Davis's wharf, opposite Watkins wharf; not in use.	.....do.....	.....do.....	
Wharf of Baker Packing Co., at Odessa, Del.; no charge to public.	.....do.....	.....do.....	
Wharf at Rock Landing, near mouth of river; private wharf, but open to public without charge.	.... do.....	No highway from wharf.	

MURDERKILL RIVER, DEL.

Dock at Bowers, Del.; private, but open to use of public, adequate for all requirements.	There is no direct physical connection with railroad from Bowers, Del.; railroad station about 12 miles; good road; no arrangement for interchange of traffic.	A good roadway exists from all the docks mentioned.	There are all of the water terminals that are necessary on the river.
Dock at Webbs, Del.; private, but open to use of public, adequate for all requirements.	There is no direct physical connection with railroad from Webbs, Del.; railroad station about 10 miles; good road; no arrangement for interchange of traffic.	.....	
Dock at Frederica, Del.; private, but open to use of public; adequate for all requirements. This dock and those given above are owned and controlled by the Frederica & Philadelphia Navigation Co. and are used by the public generally.	.....	.....	

MISPILLION RIVER, DEL.

New wharf on Mispillion River, 2 miles direct line from Milford; open to public; not in good repair; free.	Kent County side; no railroad connection except by wagon road.	Good roadway.	
Patter's wharf; not in good repair; open to public; free.	Sussex County side; no railroad connection, except by wagon road; free.	7½ miles from Milford by water.	
Maloney's wharf; open to public; free; about 11½ miles from Milford by water.	Kent County side; no railroad connection.		
Cain's wharf; open to public; free; about 11½ miles from Milford by water.	.....do.....	.....	
Lighthouse wharf; free; located at mouth of Mispillion River, Del.	Sussex County side; 15½ miles from Milford by water and 7 miles by land.	Good wagon road to Milford.	
Scribner's wharf, near electric-light plant; open to public; $1 per day.	Sussex County side; no communication with railroad except by good wagon road.	.....	
Darwin S. Collins' wharf, near Montgomery Street; open to public; rate $1 per day.	Sussex County side; no communication except by good wagon road.		

MISPILLION RIVER, DEL.—Continued.

(a)	(b)	(c)	(d)
Vinyard ship-building wharf, Franklin Street, Milford, Del.; private, for unloading lumber and machinery.	Sussex County side.....	.....	
Vinyard Ship-Building Co., Pear Street, Milford, Del.; open to public; $1 per day.	Sussex County side; no connection with railroad except by good wagon road.	.....	
Milford Lumber Co., Milford, Del.; private.	.....do.....	.....	
Geo. F. Pierce, Milford, Del.; private; used for unloading his phosphate.	Kent County side; no railroad connection, except by wagon road.	.....	
Torsch Packing Co.; private; used for loading canned vegetables.	Sussex County side; no railroad connection except by wagon road.	Not in town limits.	

SMYRNA RIVER, DEL.

Dock of Smyrna Steamboat Co.; private wharf.	No direct physical connection from wharves to railroad station; 1 mile from wharves and reached by good roads.	A good road exists from docks to make connections with railroad lines; two steamers make direct connections with all railroads and steamboat lines out of Philadelphia for long-distance traffic.	
Private wharf of L. M. Price.	.....do.....	.....do.....	
Private wharf of W. A. Stokesbury.	.....do.....	.....do.....	

LEIPSIC RIVER, DEL.

Wharf at Whitehall Landing; public, free of charge on equal terms to all; readily accessible.	No connection with railroad or steamboat lines.	A good highway to the landing.	
Wharf of A. S. Moore & Bro., in town of Leipsic; private, but open to use of public on equal terms to all; readily accessible.	.....do.....	.....do.....	
Wharf of J. W. Fennimore, jr., Leipsic (adjoins the above wharf); public; free to all boats loading or unloading; easily accessible.	.....do.....	.....do.....	
Wharf of Luther Vessels in the town of Leipsic; joins the above wharf of J. W. Fennimore, jr.; private, but free to public on equal terms to all; no charge is made for vessels loading or unloading their cargoes; easily accessible.	No terminal connection with any railroad or steamboat lines.	Main street of Leipsic to wharf.	
Ford & Wilson wharf, in town of Leipsic; joins above wharf; public, free to all on equal terms at all times; easily accessible.	.....do.....	.....do.....	

LEIPSIC RIVER, DEL.—Continued.

(a)	(b)	(c)	(d)
Private property, used exclusively by the owners in conducting their business:			
William Cummins, joins above wharf of Ford & Wilson, Leipsic, Del.	No connection with railroad or steam boat lines.	A good highway to the landing.	
Charles Parker, joins above wharf and is easily accessible.	.....do.....	.....do.....	
Wharf of Richardson & Robbins canning factory, formerly owned by S. H. Levins Sons; situated on north side of river in Leipsic; no charge is made for boats loading or unloading their cargoes.	.....do.....	.....do.....	
Proposed wharves on the western part of the river between Leipsic and Garrison's mill:			
Lafferty's landing, 1 mile west of Leipsic; private, but open to the public on equal terms; a small fee will be charged for boats loading or unloading cargoes; no discrimination will be shown any boat or boats, all being treated alike; it is easily accessible, and was formerly the largest shipping point on the river.	No terminal connection with railroad or steamboat line.	A good road to the landing.	
Landing west of Martin's bridge; the farmers in vicinity bearing the expense, and the same to be open to the public on equal terms, free of charge.	.....do.....	Public road from Leipsic to Smyrna.	
The owners of the Cowgill estate, Mrs. M. A. Bentley, and Benjamin Hazell, owner of the Truax estate, propose building wharves on their property situated between Martin's bridge and Garrisons's mill, to be open to the public on equal terms, free of all charge.	.....do.....	A good road to all landings.	
At Garrison's mill, the head of Leipsic River, it is proposed by the owners, Iamaliel Garrison, Thos. D. Garrison, and J. Herman Anderson, to build a large wharf to accommodate steamboats or vessels of any size that may ply in the river, on equal terms to all, upon payment of a small fee for wharfage.	.....do.....	A good highway exists from the landing, to make connections with the Delaware division of Pennsylvania Railroad, either at Brenford, 1½ miles distant, or Cheswold, 2 miles distant.	

LITTLE RIVER, DEL.

(a)	(b)	(c)	(d)
LITTLE CREEK, DEL.			
Dock of J. T. Lowe; private, but open to use of public free of charge: located on the north side of the river.	No direct physical connections with railroads, and no arrangements for interchange of traffic.	A good public road extends along all the docks and wharves named, which is improved by Kent County.	
Wharf of J. T. Lowe, on east side of public road, and adjoining drawbridge over Little River; open to use of public upon payment of small wharfage fee.	do		
County wharf belonging to Kent County, on south side of river; open to public at large, free of all charges.	do		
Severn's Wharf on south side of river adjoining county wharf. Open to public at large, upon payment of $1 per vessel load.			

ST. JONES RIVER, DEL.

Wharf of Mary S. Martin, at the foot of East Street, in Dover, Del., open to the use of the public without charge.	No direct physical connection with railroad from this dock; railroad station one-half mile away; good road; no arrangement for interchange of traffic.	A good roadway exists from this dock to make connections with Pennsylvania R. R. at Dover, Del.	Wharf in fair condition.
Wharf of the Dover & Philadelphia Navigation Co. at Lebanon, Del., but open to use of public on equal terms free of charge.	No direct physical connection with railroads from this wharf; railroad station at Wyoming, 3 miles distant; good road; no arrangement for interchange of traffic.	A good road exists from this wharf to Wyoming, Del., and Dover, Del., to make connection with Pennsylvania R. R.	Wharf in excellent condition.
Wharf of the Dover & Philadelphia Navigation Co., known as Wilsons wharf; about halfway between Lebanon and Barkers Landing; open to use by public on equal terms free of charge.	No direct physical connection with railroads from this wharf; nearest railroad station at Dover, Del., about 6 miles distant.	A good road exists from the wharf to Pennsylvania R. R. station at Dover, Del.	Wharf in good condition.
Wharf of the Dover & Philadelphia Navigation Co., at Barkers Landing, but open to use by the public on equal terms free of charge.	No direct physical connection with railroads from this wharf; railroad station 7 miles distant, at Wyoming, Del.; no arrangement for interchange of traffic.	A good roadway exists from this wharf to railroad.	Wharf in excellent condition.
Wharf of the Dover & Philadelphia Navigation Co., at Bowers Beach open to use by public on equal terms free of charge.	No direct physical connection with the railroads from this wharf; railroad station 12 miles distant at Wyoming, Del.	do	Do.

BROADKILL RIVER, DEL.

(a)	(b)	(c)	(d)
Wharf of James and Ida Ponder, between Union and Federal Streets; private; rented by the year.	No direct connection with railroad. Station one-third mile away; good road to it.	A good and improved highway exists to each of the terminals named.	
Wharf of Emma W. Burton, adjoining above wharf.	.....do.....	.....	
Public wharf; free wharfage to all.	.....do.....	.....	
Wharf of Emma W. Burton, adjoining above public wharf.	.....do.....	.....	
Royal Packing Co.'s. wharf, private; occupied by their plant.	.....do.....	.....	
Wharf of James and Ida Ponder.	.....do.....	.....	
Wharf of C. H. Atkins....	.....do.....	.....	
Wharf of W. B. Tomlinson.	.....do.....	A good public paved highway exists to each of the terminals named.	
Milton Feat Co.'s wharf, private.	.....do.....	.....	
Wharf of Winters & Prophet Canning Co.	.....do.....	.....	
Wharf of Anderson's Packing Co., private.	.....do.....	.....	
Landings as follows, which are free to all traffic: Brickyard Landing; Sampsons Landing; Careys Landing; Conwells Landing; Hevaloes Landing; Cedar Landing; Hudsons Landing.	.....do.....	.....	
Wharf at drawbridge; open to all traffic; wharfage charged.	No direct connection with railroad; station 1½ miles away; good road.	.....	
Landings as follows, which are free to all traffic: Blacks Landing; Russells Landing; Willbanks Landing; Hazzards Landing; The Rocks Landing.	.....do.....	.....	

INLAND WATERWAY BETWEEN REHOBOTH AND DELAWARE BAYS, DEL.

(a)	(b)	(c)	(d)
LEWES RIVER, A PART OF THE INLAND WATERWAY.			
Town Landing, at Ocean House Bridge, used by all boats coming to the town free of charge.	Connection by good roads with the two railroads entering the town, and with all parts of the surrounding country through the streets of the town; no arrangements for interchange of traffic.	Good roads	The traffic is largely prospective, dependent upon the opening of the channel between Rehoboth Bay and Lewes River. Ample land bordering on Lewes River is available for unlimited extension of facilities. The present facilities are ample for extending traffic.
An old wharf on public land at the foot of Market Street, Lewes, now unused because the river is not navigable above Ocean House Bridge.	Same as stated for preceding wharf.	do	No traffic, and can not be any until the river is improved.
REHOBOTH END OF THE INLAND WATERWAY.			
Public landing at the county road crossing canal, on United States reservation by permit, and used by boats running between Bethany Beach and other points on Rehoboth Bay and Indian River and Rehoboth Beach, Del., and free to the public, although constructed by private parties.	Connected with the railroad by good country road; no arrangement for interchange of traffic.	do	The existing facilities are ample for present traffic. From the large and increasing amount of traffic now being done with present imperfect facilities, it is apparent that quite extensive permanent facilities will be demanded by an enormous volume of business, waiting for the opening of the canal. Ample public land is available to meet this demand, and short sidings will make physical connection with the near-by railroads. Good country roads already exist.

CAT RIVER AND BOGUE BAY, VA.

No wharves or docks; it is merely a connecting link between waters north and south.			

R. R. RAYMOND,
Major, Corps of Engineers.

REPORT OF COL. LANSING H. BEACH, CORPS OF ENGINEERS, OF THE BALTIMORE, MD., DISTRICT.

[The letters (a), (b), (c), and (d) indicate subheadings as shown by footnotes.]

PATAPSCO RIVER, MD.

1. (a) Baltimore Harbor is in three parts, viz, the northwest branch of Patapsco River (which is the part under consideration in this report), the middle branch of the same stream (southwest Baltimore Harbor), and Curtis Bay, another tributary. Each division mentioned is the subject of a separate project. The project here considered is for a channel 35 feet deep and 1,000 feet wide through the bar off York River, and from the 35-foot contour in Chesapeake Bay off Magothy River to the city line at Fort McHenry, having a total length of 24½ miles.

This is the principal harbor and is a land-locked tidal basin of irregular shape, extending from the southeast corner of the city about 3 miles in a generally northwesterly direction to within four blocks of the city's center, and having a width varying from about three-eighths to three-fourths of a mile. The only inflow of fresh water into this basin is from Jones Falls, a small stream which enters it on the northerly side about one-half mile below the upper end. This basin is maintained by the city, which provides in the tax levy annually for an appropriation for the purpose.

All sides of the basin are taken up by harbor facilities, wharves, piers, marine railways, dry docks, shipyards, modern grain elevators, terminal warehouses equipped with modern appliances for handling freight, etc., for a distance of over 6 miles. Seventeen per cent of this dock space is owned by the municipality, which is now expending the balance of two loans of $6,000,000 and $5,000,000 on terminal facilities.

There are accommodations for all classes of vessels from the smallest to ships of over 30-feet draft.

Some of these wharves are public and open to all on equal terms; some are public but leased for periods by private concerns and used exclusively by them; some are private and open to all on equal terms; and others are privately owned and used exclusively. They are generally efficient for the particular uses to which they are put. The methods of freight handling vary from cranes and telphers to hand trucks.

Ample anchorage areas are available; there is always an abundance of fresh water to be had; excellent coaling facilities are provided; and there are no port charges.

(b) Many of the piers have physical connection with the railroads entering the city. These roads have their own water terminals and also tracks laid in the city streets over which connection is made with many private ones.

(c) All of the piers within the city are reached by well-paved and adequate highways.

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.

2. Within the Baltimore city limits there are available 18 miles of water front suitable for dockage purposes, a large part of which is still undeveloped, and there are several times this length within the immediate vicinity. There are three big railway lines entering the city, over which a number of other lines are operated by traffic arrangement. Water commerce is accommodated by 34 steamboat and steamship lines, besides many "tramp" steamers and vessels of other classes, which are engaged in domestic and foreign trade. In the Chesapeake Bay and coastwise trade 13,000 craft of all kinds are engaged. The average annual tonnage of freight received and distributed at Baltimore by all classes of craft is 40,000,000 tons.

3. There are inclosed a descriptive table of the piers in the main harbor; a map showing their location; a copy of laws relating to Baltimore Harbor; map showing proposed harbor improvements; and a copy of the report of the harbor board of Baltimore.

4. The Maryland Steel Co. owns three docks, which are used for handling export and import as well as coastwise material, located at Sparrow Point, Baltimore County, Md., described as follows:

Pier 1. Timber construction on wooden piles; length, 602 feet; width, 39 feet 6 inches; height above mean low water, 8 feet.

Pier 2. Timber construction on wooden piles; length, 704 feet; width, 100 feet; height above mean low water, 11 feet 6 inches.

Pier 3. Concrete bulkhead on concrete piles; length, 600 feet; height above mean low water, 11 feet 6 inches.

These piers are not provided with warehouse facilities or appliances for handling heavy material, although Piers 1 and 2 are equipped with derricks and winches used in connection with vessel's tackle, which facilitates the loading or discharging of vessels. Pier 3 is used principally for discharging ore vessels and is equipped with two Brown hoist ore unloaders, each machine capable of handling 500 tons of ore per hour. These piers are open to all water carriers on equal terms. No charge for wharfage is made and the yearly tonnage handled varies from 800,000 to 1,000,000. All the piers contain railroad tracks, which have physical connection with the Baltimore & Sparrows Point Railroad, which interchanges freight traffic with all the trunk lines entering Baltimore, and, we might state, that from 400,000 to 600,000 tons of material is handled to and from the interior points through this port. At the marine yard of this company there is a hydraulic crane of 125 tons capacity. There are no prorating agreements for freight passing over the piers of this company. These piers are reached by adequate highways.

5. Many channels, branching from the main channel in Patapsco River, have been dredged at private expense to piers that could not otherwise be reached by deep-draft vessels.

LANSING H. BEACH.

STATUTES.

HARBOR, DOCKS, AND WHARVES.

1. The mayor and city council of Baltimore shall have full power and authority to provide for the preservation of the navigation of the Patapsco River and tributaries, including the establishment of lines throughout the entire length of said Patapsco River and tributaries, beyond which lines no piers, bulkheads, wharves, pilings, structures, obstructions, or extensions of any character may be built, erected, constructed, made, or extended; to provide for the

improving, cleaning, and deepening of said river and tributaries and the removal therefrom of anything detrimental to navigation or health; to provide for and regulate the stationing, anchoring, and moving of vessels or other water craft, and to prevent any material, refuse, or matter of any kind from being thrown into, deposited in, or placed where the same may fall or be washed into said river or tributaries; to make surveys or charts of the Patapsco River and tributaries, and to ascertain the depth and course of the channel of same, and, if necessary, affix buoys or watermarks for facilitating and rendering more safe the navigation thereof; to erect and maintain and to authorize the erection and maintenance of and to make such regulations as it may deem proper respecting wharves, bulkheads, piers, and pilings and the keeping of the same in repair so as to prevent injury to navigation or health; to regulate the use of public wharves, docks, piers, bulkheads, or pilings, and to lease or rent the same, and to impose and collect dockage from all vessels and other water craft lying at or using the same, and to collect wharfage and other charges upon all goods, wares, merchandise, or other articles landed at, shipped from, stored on, or passed over the same; to provide for the appointment of such officers and employees as may be necessary to execute the aforegoing powers and to impose fines or penalties for a breach of any ordinance passed in conformity herewith, said fine not to exceed $200 for any offense. (Acts of 1908, ch. 148, P. L. L., art. 4, sec. 6.)

2. The title of the mayor and city council of Baltimore in and to its water front, wharf property, land under water, public landings, wharves, docks, highways, avenues, streets, lanes, alleys, and parks is hereby declared to be inalienable. (P. L. L., art. 4, sec. 7.)

3. The harbor board shall be the head of the third subdepartment of public improvements, which shall have charge of the harbor, wharves, and navigable waters, including bridges over same, in and adjacent to the city of Baltimore. It shall consist of five persons appointed by the mayor in the manner prescribed in section 25 of this article, who shall hold their offices as therein provided. One of said five persons, who shall be the president of said board and known as the harbor engineer, and so named by the mayor, shall be a civil engineer in the active practice of his profession for five years and who has had responsible charge of work for at least that period of time. The harbor engineer shall receive a salary of $4,000 per annum, payable monthly, and the other members of said board shall serve without pay. All subordinates employed in said subdepartment shall be appointed by the harbor engineer, subject to the approval of said board; he shall fix their compensation, not to exceed in the aggregate the amount appropriated by ordinance. The harbor engineer and harbor board shall perform such other duties as may hereafter be prescribed by ordinances not inconsistent with this article. (Acts of 1908, ch. 170, sec. 88.)

4. Any person owning real estate in fee simple or having therein an estate for years, renewable forever, or any of the navigable waters of this State may construct wharves thereon and extend the same such a distance into the stream as may be required to admit the safe approach thereto of any vessel navigating said waters, provided said wharves be not extended so as to interfere with the fishing or navigation of said waters. (P. G. L., art. 98, sec. 21.)

5. No alteration, extension, or removal of wharves, piers, bulkheads, or pilings shall be made in the Patapsco River or tributaries without consent of the harbor board. (Acts of 1908, ch. 170, sec. 463.)

6. If any person shall violate the provisions of the preceding section, he shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be subject to a fine not exceeding $250, and the harbor board is hereby empowered to remove forthwith, at the expense of the persons erecting the same, the structure, obstruction, or extension complained of. (Ibid., sec. 464.)

7. Any person or corporation who shall be the owner or lessee under an agreement to keep in repair any wharf, pier, or landing projecting into or bordering upon any navigable waters within the State of Maryland where passengers are landed or taken off who shall knowingly permit any such wharf, pier, or landing to be or to remain in an unsafe condition, and any steamboat or transportation company which shall land passengers at any such wharf, pier, or landing knowing the same to be unsafe, shall be guilty of a misdemeanor and liable to a fine of not less than $50 nor more than $100, to be collected as other fines and forfeitures are collected, one-half to go to the informer. (P. G. L., art. 98, sec. 23.)

8. The mayor and city council are vested with the right and title to any land made or to be made by them out of the waters in making and completing the

improvements of the city dock, according to the plan heretofore adopted by them: *Provided*, That nothing contained in this section shall be construed to interfere with the vested rights of individuals. (P. L. L., art. 4, sec. 467.)

9. No vessel shall lie at any wharf, pier, or dock, or adjoining same, in such manner as to obstruct or prevent the free passage of any vessel to or from some other berth in the same or another wharf, pier, or dock. The master of any vessel refusing to comply with the provisions of this section within one hour from the time notice to move his said vessel shall have been served upon him by the harbor master or a police officer of Baltimore city shall be guilty of a misdemeanor and shall be subject to a fine of not more than $20 for every hour thereafter said obstruction continues. (Acts of 1908, ch. 170, sec. 468.)

10. The harbor board shall have full control and management of the ice boat *Annapolis*, belonging jointly to the State of Maryland and the city of Baltimore, subject to the orders of the governor of the State, for the use of said boat for the public service. (P. L. L., art. 4, sec. 480.)

11. The said board is hereby authorized to appoint in conformity with the provisions of section 88 of this article, at such reasonable rates of pay as it may determine and at its pleasure to discharge, such officers and crew as may in its judgment be deemed necessary for the proper operation and maintenance of said boats at all times. (Ibid., sec. 481.)

12. The said board shall employ the said boat primarily for the purpose of preventing obstruction by ice to the navigation of Baltimore Harbor and the ship channels leading thereto and for the relief of vessels in distress bound to or from the port of Baltimore. (Ibid., sec. 482.)

13. The board is further authorized to use the said boat (or, at its discretion, the ice boat *Latrobe*) in the relief from obstruction by ice of any of the harbors or channels of the Chesapeake Bay or its tributaries when such service can be rendered without detriment to the commerce of the port of Baltimore and for any other service which the said board may deem advantageous to commerce and the public interest; the board may charge such reasonable rates for towage or relief of vessels as it may deem proper, having in view the public and private interests and facilities of commerce, and the sum received for same shall be applied to the expense of the boat. (Ibid., sec. 483.)

14. The annual expenses of maintaining and operating said ice boat shall be paid by the mayor and city council of Baltimore. (Ibid., sec. 484.)

15. The said board shall, in its annual report to the mayor and city council of Baltimore, embody statements of the operations of and the receipts and disbursements for the said ice boat, and shall send copies of the same to the governor and comptroller of the treasury of the State. (Ibid., sec. 485.)

ORDINANCES.

HARBOR ENGINEER.

1. Under the direction of the harbor board the harbor engineer shall direct and supervise the work of the subdepartment and make reports of same to the board, and the subordinates appointed by the harbor engineer, subject to the approval of the harbor board, shall perform such duties as may be required of them by the harbor board; all of them to be sworn to a faithful performance of their work, and such as should be bonded to protect the public interests to give bond in such penal sums as the harbor board may deem sufficient. (Ord. 293, Apr. 10, 1909, art. 22, sec. 1.)

ASSISTANT HARBOR MASTERS.

2. The comptroller shall appoint such assistant harbor masters as may be needed by the harbor master to perform the duties of his office. The comptroller shall fix the monthly compensation of the assistant harbor masters, not to exceed in the aggregate 20 per cent of the monthly collections of all the assistant harbor masters. (Art. 22, sec. 2.)

CONTRACTS.

3. In all contracts made by the harbor board in which such a stipulation shall be appropriate the harbor board shall reserve to itself the right to control and regulate the manner of performing the work or carrying out the contract so as to guard against giving unnecessary obstructions or interference to any

legitimate business carried on in the harbor: and in the case of all contracts made by the harbor board it shall retain 20 per cent of all moneys due before the completion of the contract as a security for the contractor's compliance with all the terms of the contract. (Ibid., sec. 3.)

ANCHORAGES.

4. The harbor board shall cause anchorages No. 1, No. 2, No. 3, and No. 4 to be marked by buoys or otherwise. (Ibid., sec. 4.)

5. Anchorage No. 1 shall be within a line south of a line drawn from the west corner of Shaw's coal pier to the northeast corner of Beachman & Bro. shipyard. Buoys inclosing said anchorage shall be located as follows from pierhead line: From Station LVII, 227 feet north, 231 feet east to Buoy No. 1; from Station LVII, 645 feet north, 416 feet east to Buoy No. 2; from Station LVIII, 619 feet north, 517 feet east to Buoy No. 3; from Station LVIII, 387 feet north, 16 feet west to Buoy No. 4. No vessel shall anchor within 300 feet of any pier fronting this anchorage. (Ibid., sec. 5.)

6. Anchorage No. 2 shall be north of a line from the foot of Fell Street to the coal wharf foot of Ninth Street, and then west of a line drawn from Ober's wharf to corner of Canton Co.'s bulkhead, and shall be located as follows from pierhead line: From Station XVI, 407 feet south, 37 feet east to Buoy No. 1; from Station XVII, 139 feet south, 309 feet west to Buoy No. 2; from Station XVIII, 122 feet south, 307 feet west to Buoy No. 3; from Station XVIII, 278 feet south, 770 feet west to Buoy No. 4; from Station XIV, 270 feet south, 310 feet east to Buoy No. 5. No vessel shall anchor within 300 feet of any pier or bulkhead fronting this anchorage. (Ibid., sec. 6.)

7. Anchorage No. 3 shall be northeast of a line from Fell Street to coal pier foot of Ninth street and west of a line from the Baltimore Dry Dock Co.'s wharf to the elevator, foot of Sixth Street, south of a line drawn from Baltimore Copper Co.'s bulkhead to Ober's wharf, and shall be located as follows: From Station XVIII of pierhead line, 1,008 feet south, 152 feet west to Buoy No. 1; from Station XX of pierhead line, 372 feet south, 486 feet west to Buoy No. 2; from triangulation station, sea wall, 1,205 feet north, 1,130 feet east to Buoy No. 3; from triangulation station, sea wall, 1,192 feet north, 760 feet east to Buoy No. 4. (Ibid., sec. 7.)

8. Anchorage No. 4 shall be northeast of the old marine hospital grounds, and located as follows from pierhead line: From Station LXXXV, 250 feet north to Buoy No. 1; from Station LXXXV, 1,450 feet north to Buoy No. 2; from Station LXXXVI, 6,400 feet north, 600 feet east to Buoy No. 3; from Station LXXXVI, 375 feet south, 600 feet east to Buoy No. 4. (Ibid. sec. 8.)

9. All vessels anchoring in the harbor shall anchor so as to keep within one of said anchorages, and be subject to all rules and regulations which the harbor board may enforce. All vessels when at anchor between sunset and sunrise shall show a white light where it can be seen best at a height of about 20 feet above the hull. Any vessel anchored so as to obstruct the free passage of any other vessel to or from any wharf or dock shall remove to such place as the harbor board may direct upon a half hour's notice, and if no person be on such vessel upon whom said notice can be served, then the harbor board must have the vessel removed, and the expense for the same shall be paid to the harbor board by the master of such vessel. The master of any vessel violating this ordinance shall pay a penalty of $20, and a further penalty of $10 for every hour the offense continues. (Ibid., sec. 9.)

10. The pierhead line of 1900, established for the Patapsco River by act of the Secretary of War, and the lines inside the pierhead line in portions of the harbor shown on plats numbered from 1 to 5, signed by the mayor and the harbor board under Ordinance No. 116 of 1894, are hereby declared to be the limiting lines beyond which no structure shall extend. (Ibid., sec. 10.)

11. Whenever the same may be proper and necessary the harbor board shall cause public wharves or bulkheads to be built or repaired at any water-front property of the city. The harbor board shall require all private wharves or bulkheads that are decayed or defective, or likely to be injurious to navigation or to health, to be rebuilt or repaired within a reasonable time to be prescribed in a written notice (not less than 30 days) to be served on agent, owner, or occupier of such wharf or bulkhead, and the owner of any water-front property on the Patapsco River or tributaries shall cause the same to be secured and protected in such manner as the harbor board may think proper and may

direct, and if the owner is a minor, or can not be found, the harbor board shall have such property secured and protected at the expense of the owner, to be recovered by the mayor and city council in due course of law; any person who fails to comply with the requirements of this section shall pay a fine of $10 for every day of noncompliance. (Ibid., sec. 11.)

NOTE.—See City Code, title "Health," article 23: "Section 34. Whenever the commissioner of health shall be of opinion that the navigation at any of the wharves or docks, from not being sufficiently deepened or cleaned, is in such a condition that a nuisance may be created thereby, he shall cause a notice to be served upon the occupier or occupiers, agent or agents, owner or owners of any wharf or wharves, dock or docks, to deepen or cleanse the navigation at any wharf or dock in such manner as may be prescribed in such notice; and if such owner or owners, occupier or occupiers, agent or agents shall neglect or refuse to deepen or cleanse the same, each person so offending shall forfeit and pay $10 and the further sum of $5 for each and every day he, she, or they shall so neglect or refuse, and shall moreover pay the expense incurred in case the navigation of such wharf or dock shall be deepened and cleansed under the authority and direction of said commissioner, which he is hereby authorized to cause to be done on such neglect or refusal, within five days, under the superintendence of the harbor board."

12. No piles shall be driven and no platform erected, nor shall any filling in or construction, repairs, alterations, removals, dredging, or demolitions of any kind be made in the Patapsco River or tributaries below mean high tide without written consent of the harbor board. If any person shall violate the provisions of this section he shall be deemed guilty of a misdemeanor and upon conviction thereof shall be subject to a fine not exceeding $250, and the harbor board is hereby empowered to remove forthwith, at the expense of the person violating this section, the structure, obstruction, extension, or filling in complained of. (Ibid., sec. 12.)

13. No shed, building, office, tally house, booth, or stand shall be erected, nor shall any derrick, hoisting mast, coal hopper, sign, or advertising device or obstruction of any kind be placed or maintained on any pier, bulkhead, marginal street, quay, or wharf structure, nor upon any reclaimed land, without a written permit from the harbor board, and if the owner, lessee, occupant, or agent of said wharf property or land shall place or permit the erection, placing, or maintaining of any erection or any structure without such permit from the harbor board, then for failure to remove same said owner, lessee, occupant, or agent shall be subject to a fine not exceeding $200 in addition to all damages for each and every violation of this section, and the harbor board is hereby empowered to remove forthwith, at the expense of the person violating this section, the structure or obstruction complained of. (Ibid., sec. 13.)

14. No cargo shall be discharged from any vessel or other water craft upon any pier, bulkhead, or wharf structure at which such vessel or other water craft is being unladen after notice signed and served by the harbor board or the harbor master upon the owner or stevedore, consignee, master, or other officer of such vessel or other water craft, that such pier, bulkhead, or structure will be endangered by the placing of additional cargo thereon. If any person shall violate the provisions of this section, he shall be subject to a fine not exceeding $200 in addition to all damages caused thereby after the service of said notice. (Ibid., sec. 14.)

15. No vessel or other water craft shall be loaded or discharged by horse power, unless proper planking be provided to protect the surface of such pier, bulkhead, or wharf structure from injury consequent upon the travel of the horse or the unloading of stones or similar cargo. If any person shall violate the provisions of this section, he shall be subject to a fine of $20 in addition to all damages caused by such violation. (Ibid., sec. 15.)

16. All lumber, brick, or other material in bulk discharged on any pier or bulkhead must be placed at least 5 feet from the edge of the pier or bulkhead pending removal. The owner or consignee of such lumber, brick, or other material, or the person placing or causing the same to be placed on such prohibited space, shall be subject to a fine of $20 per day for each and every violation of this section. (Ibid., sec. 16.)

17. No unharnessed truck, cart, wagon, or vehicle of any description shall be placed or left at any time on any marginal street, wharf, or place, or on any bridge, bulkhead, pier, or reclaimed land under the charge and control of the harbor board. If any person shall violate the provisions of this section, he shall be subject to a fine of $3, and the harbor board is empowered to remove forth

with such obstructing vehicle and hold same until said fine and all other charges shall have been paid. (Ibid., sec. 17.)

18. All work under a permit issued by the harbor board shall be done in accordance with the rules and regulations of the department and in accordance with plans and specifications submitted by the permittee and wholly at the expense of the permittee. The permittee shall indemnify and save harmless the mayor and city council of Baltimore, its officers, agents, and servants, against and from all damages, cost, and expense which they may suffer, or to which they may be put by reason of injury to the person or property of another resulting from carelessness or negligence on the part of the permittee. The procedure under the permit issued by the harbor board shall be in strict compliance with all applicable laws and ordinances and the rules and regulations of the city departments established for the purpose of enforcing them; and the harbor board shall have the right to revoke a permit at any time. (Ibid., sec. 18.)

19. The owners, lessees, and occupants of every pier, wharf, or bulkhead in the city of Baltimore, or bordering on the Patapsco River or its tributaries, shall keep the same clean and in repair, and whenever in the judgment of the harbor board it shall be necessary so to do, written notice shall be served upon the owners, lessees, or occupants of any such pier, wharf, or bulkhead on which cleaning and repairs are required, specifying the nature and extent of such cleaning and repairs and the time within which the same must be done; and in case the owners, lessees, or occupants so notified fail to comply with the terms and requirements of such notice they shall pay a fine of $25 a day for each and every day of noncompliance. (Ibid., sec. 19.)

20. The harbor master shall have daily collections made of all amounts due for dockage and wharfage, and whenever any amount is due two days and the pay not secured to the satisfaction of the harbor master, he shall enforce the payment thereof in the same manner as other city dues are collected. It shall be the duty of the assistant harbor masters to make monthly returns, on oath, to the comptroller through the harbor master, specifying the source from which collections were made for dockage and wharfage. The comptroller shall furnish to the harbor master and assistants the necessary books in which to keep their accounts, which shall be returned to the comptroller when filled or a change of officers takes place, and all expenses on account of the harbor master and assistants shall be paid from the money collected by them. (Ibid., sec. 20.)

21. There shall be no dockage collected on any barge or scow lying at any city wharf, dock, or bulkhead, upon which wharfage is collected under section 22 on said barge or scow, in excess of $2 per diem or part thereof. All vessels, including barges and scows, lying at any city wharf, dock, or bulkhead, that are allowed free wharfage under section 22, shall pay the following rates per calendar day, or for any less time, namely: Under 8 tons, 50 cents; from 8 to 50 tons, $1; from 50 to 150 tons, $1.50; all over 150 tons, 1 cent per ton; all vessels shall pay double the above rates for every day above 6, and treble for every day above 12 that it shall remain at any wharf, dock, or bulkhead aforesaid, unless allowed to remain longer by the harbor master, who is hereby authorized to extend the time for said vessels in all cases when he may think the public interest is promoted thereby, but no light vessel, barge, or scow may remain at any public wharf, dock, or bulkhead. If the harbor master serves notice on the captain, owner, consignee, or stevedore of any vessel, barge, or scow to remove same from any city wharf, dock, or bulkhead, and the same is not removed two hours after such notice has been served, the harbor master shall collect from the captain, owner, consignee, or stevedore $2 for the first day or part thereof and $2 additional for each and every day or part thereof that such vessel, barge, or scow shall remain at any city wharf, dock, or bulkhead two hours after notice to remove same has been issued by the harbor master. (Ibid., sec. 21.)

22. All goods, wares, merchandise, or other articles landed at or upon and shipped from any public wharf shall pay the following rates of wharfage per calendar day, or for any less time the same may remain thereon:

Bags of coffee, ginger, pepper, or any other articles in similar bags, each 1 cent; bales of merchandise, cotton, dry goods, etc., each 4 cents; barrels of flour, sugar, potatoes, and onions, each 1 cent; larger barrels, each 2 cents; boxes of dry goods and foreign drugs, gums, etc., each 3 cents; boxes of raisins, soap, candies, etc., each one-half cent; castings of all kinds per ton, 15 cents; carriages, wagons, or carts, each 12½ cents; coal, per ton of 28 bushels, plaster, etc., 5 cents; sand, gravel, or bricks, $2.50 per day, or part thereof, for each vessel, barge, or scow; crates of ware, or hampers of bottles, each 4 cents;

dyewoods of all kinds, per ton, 15 cents; grain per bushel, and all other articles sold by the bushel, with the exception of oysters, not exceeding one-half cent; hides and leather per 100 sides, 30 cents; hogsheads and pipes of every description containing merchandise or otherwise, each 6¼ cents; iron or steel per ton, 10 cents; kegs of nails, shot, raisins, butter, lard, etc., each 1 cent; tierces of every description containing merchandise or otherwise, each 4 cents; bananas, one-half cent per bunch for full cargo, less 10 per cent for damaged fruit; pineapples, 15 cents per 1,000; coconuts, 10 cents per 1,000; watermelons, 10 cents per 100; all other articles not enumerated in the above list to pay in proportion, this not to include produce, vegetables, or fruit. For each 10 days or part thereof on all lumber, 15 cents per 1,000 feet; shingles, 5 cents per 1,000; laths, 3 cents per 1,000; firewood, 20 cents per cord; and fence posts, each 1 cent. All goods shipped from one vessel to another shall pay one-half of the above rates, to be paid by the vessel shipping the goods. The harbor master may require anything landed on any public wharf to be removed within 24 hours after landing same, or subject the same to a daily penalty of 50 cents for each foot occupied of the length of the wharf. (Ibid., sec. 22.)

23. The master of any vessel lying at any public wharf shall exhibit to the harbor master, upon request, the enrollment or license of such vessel showing her proper tonnage, and shall furnish to the harbor master the manifest of bills of lading of cargo landed or received at said wharf, and the person who inspects lumber on any public wharf, or the owner or agent of lumber landed at such wharf, shall furnish to the harbor master a certified copy of the certificate of inspection or the tally sheets showing the number of the feet in each pile of such lumber. The master of any vessel or other person who violates this section shall pay a fine of $20. (Ibid., sec. 23.)

24. No vessel shall enter any public dock or use the anchorage without permission from the harbor master, who shall regulate the manner in which all vessels shall lie at any public wharf, so that the facilities for discharging and receiving cargoes may be afforded as generally as possible and the public interest most promoted, and the harbor master shall prescribe the time vessels may occupy the anchorage and the terms and conditions upon which they may load and discharge cargoes therein. The master of any vessel who refuses to obey the harbor master in carrying out this section shall be guilty of a misdemeanor and shall be subject to a fine of not more than $20 for each and every hour the offense continues. (Ibid., sec. 24.)

25. No vessel shall remain at any of the public wharves for the purpose of retailing any goods, wares, or merchandise, more than three whole days; and no vessel shall lie at any of the city wharves for the purpose of retailing dry goods, wares, merchandise, or produce, except the same has been brought into port by said vessel; nor shall any vehicle or booth or structure of any kind stand on any city wharf for the purpose of retailing fruit or other articles therefrom. The master of a vessel or any other person violating this section shall pay a penalty of $20, and a further penalty of $5 for every hour the offense continues. (Ibid., sec. 25.)

26. Whenever the owner or agent of any merchandise on any city wharf can not be ascertained by the harbor master, after the same has been thereon 48 hours, the harbor master may remove and sell the same, upon giving at least 10 days' notice, but perishable articles may be sold at discretion of the harbor master; and any owner or agent of said merchandise who shall claim the same before the sale thereof may take the same upon paying the wharfage and all other expenses. (Ibid., sec. 26.)

27. The harbor master shall cause all watermelons and other fruits, fish, vegetables, and refuse to be removed from any wharf whenever they shall become a nuisance; and the owner of any such watermelons or other fruit, fish, or vegetables, shall pay a penalty of $10 for every day the same shall remain after notice to remove the same has been given to the owner by the harbor master. (Ibid., sec. 27.)

28. The harbor board shall cause to be removed, in such time as it may think reasonable, all vessels which may be sunk in the harbor or port of Baltimore; and the owner or owners of such sunken vessels who refuse or neglect to remove the same when directed to do so by the harbor board shall pay a fine of $10 per day for every day the said vessel shall remain after due notice as aforesaid; and in case the owner or agent of such sunken vessel can not be found, then the harbor board shall proceed to remove said vessel and draw on the register for the sum necessary to perform that duty, said sum of money to be taken out of any money in the treasury; and as soon as the owner or agents

of such sunken vessel so removed shall be found, the mayor shall proceed to recover by law the amount expended for the removal of said vessel and also such fine as may be recovered under this section. (Ibid., sec. 28.)

29. The harbor board shall have secured or removed all obstructions to navigation that may be found drifting about or otherwise obstructing navigation, and shall notify the owner or agent of same that the said obstruction has been so secured or removed and held at his expense; and if not claimed within 10 days the harbor board shall sell the same, and any balance after the expense of securing or removing same has been paid shall be held by the city register to be paid to the owner if claimed within 12 months. Any person who shall cast loose, set adrift, or place any object likely to become a nuisance or an obstruction to navigation shall pay a fine not exceeding $200. (Ibid., sec. 29.)

30. The harbor board shall remove all deposits from the harbor and docks into which said deposits empty, whenever the board may deem it right and proper to do so without serious interference with the main work of harbor improvement. (Ibid., sec. 30.)

31. No material, refuse, or matter of any kind shall be thrown into, deposited in, or placed where same may fall or be washed into the Patapsco River, or any of its tributaries, without written permission from the harbor board, which is hereby authorized to employ supervisors to see that any material permitted to be deposited is placed where directed by said board; and the person applying for or receiving said permission shall pay for the services of said supervisors such rates as the harbor board may deem proper. Any person violating this section shall pay a fine of not more than $200, and the harbor board and harbor masters are specially charged with the execution of this section. (Ibid., sec. 31)

32. If any gas company or any other company or person shall discharge or cause any water to flow into the harbor or any stream or sewer running thereinto in which water there may be any gas tar, or other lees or dregs, the company or person so offending shall pay a fine of $20 for each offense and a further fine of $20 for every day the offense continues. (Ibid., sec. 32.)

33. It shall not be lawful for any person to swim or bathe at any time between the hours of 7 in the morning and 8 in the evening in any part of Jones Falls or of the Patapsco River within the limits of the city, so as to make an indecent exposure, under a fine of not more than $5. (Ibid., sec. 33.)

34. The harbor board shall provide a suitable barge or scow, and under such regulations as the harbor board may find necessary, to receive on the same the ashes from the towboats in use in the harbor; the said ashes to be deposited where they will not be injurious to navigation or health. (Ibid., sec. 34.)

35. The harbor board shall construct, or cause to be constructed, a pier 8 feet wide and 64 feet long, to be located as follows:

One hundred feet west of the west side of Pier No. 1 along Pratt Street bulkhead to the east side of the said new pier, and south from the said new south line of Pratt Street 90°, more or less, a distance of 64 feet to south end of the new pier.

This pier to be used by vessels controlled by the city, the harbor board being empowered to extend the use of same to vessels controlled by the State and the United States Government, where the extending of such privilege does not interfere in any manner with the docking of the city boats. Small private yachts, used exclusively for pleasure, may be extended the privilege of the use of this pier from time to time by making application to the harbor board and securing a permit, the application first to be approved by the city comptroller and an appropriate charge for the use of same fixed by him. (Ibid., sec. 34A.)

36. Subject to the provisions of section 480 to 485, inclusive (sections 10 to 15, pages 8 and 9), of the city charter and such ordinances as may be ordained by the mayor and city council of Baltimore, the harbor board shall control and manage the iceboats and shall have no power to permit the use of said boats for any other purpose than to aid the commerce and navigation of the port and to keep the harbor and the approaches thereto free from obstruction by ice, in such manner as the harbor board may deem best; and in all cases of special use of the boats, in the way of relief or otherwise, the harbor board may make such charges for said use as it may deem proper, and apply the sum received for the same toward the expenses of the boats. (Ibid., sec. 35.)

37. No vessel shall move in the harbor at a greater rate of speed than 7 nautical miles an hour westward of a line from Henderson's Wharf to the foot of Hull Street and 9 nautical miles an hour eastward of said line, and no vessel shall move in the Patapsco River or tributaries within a distance of 300 feet from

any pier or bulkhead at a greater rate of speed than 8 nautical miles an hour. The master of any vessel violating this section shall pay a fine of not exceeding $100 for the first offense and not less than $50 nor more than $200 for each subsequent offense. (Ibid., sec. 36.)

38. All vessels (except tugs) carrying passengers shall be provided with a gangplank at least 4 feet wide, with a handrail on each side thereof 4 feet high; the space between the handrail and the gangplank to be so inclosed as to prevent any person passing over said gangplank from falling overboard; said gangplank to be used by said vessel at all times upon making fast to any wharf or pier in the city of Baltimore for the purpose of embarking or debarking passengers. The master of any vessel violating this section shall pay a fine of $50. (Ibid., sec. 37.)

39. It shall be the duty of the person having in charge any vessel lying at any of the public wharves or docks to top the yards, rig in the jib booms, and place the anchor or anchors on the deck of said vessel, whenever required so to do by the harbor master or the occupier of any wharf or his agent; and any person having charge of any vessel who shall neglect or refuse to obey directions as aforesaid shall pay a penalty of $5. (Ibid., sec. 38.)

40. No person in charge of any ship or vessel shall permit any fire to be kept on the deck thereof while lying at any wharf or dock within the city between the hours of 10 o'clock at night and 5 o'clock in the morning; and it shall be the duty of the police officers to visit the bay craft within their respective districts and give information of this regulation to some person on board. The master of any vessel violating this section shall pay a fine of $5. (Ibid., sec. 39.)

41. It shall be unlawful for any person to smoke, carry, or have any lighted match, pipe, cigar, or cigarette, or carry or use any portable open light in or upon any wharf, shed, pier, or warehouse wherein or whereon may be any cotton in bales or bulk, rags, hay, spirits of turpentine, petroleum, tar, pitch, rosin, gunpowder, gasoline, or illuminating oils; any person violating the provisions of this ordinance shall, upon conviction thereof, be liable to a fine of not less than $5 nor more than $25. (Ibid., sec. 40.)

42. The harbor board shall control and maintain all bridges of the city over navigable waters in and adjacent to the city of Baltimore.

43. All fines incurred by the violation of any of the provisions of this article, enforceable thereunder by the harbor master, shall be recovered by the harbor master as other fines are recoverable; and any person who shall obstruct him in the performance of his lawful duties shall pay a fine of $20, to be recovered as aforesaid; and all other fines imposed by the provisions of this article, for the recovery of which no provision has been made herein, shall be recovered as other fines imposed by ordinances are recoverable; all of said fines when collected to be paid to the comptroller. (Ibid., sec. 41.)

Annual Report of the Harbor Board to the Mayor and City Council of Baltimore for the Fiscal Year Ended December 31, 1911.

Office of the Harbor Board of Baltimore,
Baltimore, January, 1912.

To the Honorable the Mayor and City Council of Baltimore:

Gentlemen: The harbor board has the honor to submit the following report of the operations of this subdepartment for the year 1911:

The several subdivisions of public work in charge of the board are as follows:

1. Harbor maintenance and improvement, including the maintenance and operation of the tug *Baltimore*.
2. Iceboats, their maintenance, repair, and operation when required.
3. Wharves and bridges, including the construction and repair of all city wharves, bulkheads, etc., the general supervision of all wharves and bulkheads, with a view to the enforcement of laws regulating the construction and condition of piers and bulkheads; the granting of permits to construct, extend, or alter piers or bulkheads, and the repair and maintenance of all city bridges over navigable waters.
4. The supervision of anchorages and the enforcement of all laws and regulations relating to the anchoring of vessels in the harbor.
5. The removal of insanitary floating matter from the harbor and docks.
6. The reception and disposal of ashes from towboats.

7. As occasion may arise, the removal of vessels sunken in the harbor.

8. And (under the opinion of the city solicitor) the construction of the new system of piers and docks, as authorized by ordnance No. 149, November 10, 1904.

Appropriations, etc., for the year 1911 were as follows:

Salaries (engineer and clerk)	$6,086.67
Dredging harbor	42,622.43
Iceboats	25,105.00
Repairs of wharves	12,902.53
Removal of floating matter	1,935.00
Removal of ashes	1,100.00
Incidentals	500.00
Light Street Bridge	7,082.04
Bulkhead, old marine hospital	18,000.00
Public wharves and docks	236,366.27
New improvements:	
Commercial Pier, East Baltimore	400,000.00
Commercial Highway, South Baltimore	300,000.00
Widening Pratt Street	185,000.00
Total departmental appropriation	1,236,699.94

DREDGING.

In reference to the dredging of the harbor, we respectfully refer you to the report of Mr. J. D. Custy, superintendent of dredging:

Mr. O. F. LACKEY, *Harbor Engineer.*

DEAR SIR: I have the honor of submitting my report for dredging for the season of 1911.

Proposals for dredging the harbor for the year 1911 were opened on March 15, 1911, and contract awarded the Maryland Dredging & Contracting Co., the material to be deposited on the United States Government dumping grounds at the following prices per cubic yard: Ship channels and harbor, 15 cents; back basin and docks, 15 cents; middle branch docks and channels, 15 cents.

Work was started under the contract on April 10 and was completed on December 6.

The following dredges were employed on the work: *Patapsco*, *Baltimore*, *Washington*, and *Maryland*.

The main channel was dredged to a depth of 30 feet for a distance of 1,900 by 135 feet, from the west side of elevator B to the west side of Pier No. 8 (North German Lloyd Steamship Co).

Work was commenced on a 35-foot turn basin, 600 by 600 feet, in front of the Pennsylvania Railroad Pier No. 6, Canton, but was not completed, owing to the appropriation having become exhausted.

Twelve thousand four hundred and eighty-seven cubic yards of material were removed from the catch basin at the mouth of Jones Falls.

The following tables give the amount and location of dredging done during the year 1911 and amount paid for same:

TABLE 1.

Location.	Depth.	Width.	Area.	Quantity.	Rate.	Amount.
BACK BASIN AND DOCKS						
	Feet.	*Feet.*	*Sq. ft.*	*Cu. yds.*		
Foot of Battery Avenue	(1)	50	4,500	726	$0.15	$108.90
Foot of Cross Street	18	50	6,000	800	.15	120.00
Foot of Webster Street	15	50	5,000	1,165	.15	174.75
Foot of Ann Street	18	50	3,000	316	.15	47.40
Foot of Thames Street	15	50	3,250	975	.15	146.25
Foot of Chester Street	18	50	4,000	250	.15	37.50
Foot of Canton Street	(1)	50	6,250	800	.15	120.00
Foot of Broadway	(1)	45	5,400	1,186	.15	177.90
Foot of Washington Street	18	25	1,750	513	.15	76.95
Pier No. 1, Light Street Wharf	(1)	90	10,800	1,162	.15	174.30
Pier No. 6, Light Street Wharf	(1)	25	1,000	70	.15	10.50
Between Piers 1 and 2, Light Street	(1)	50	3,500	925	.15	138.75
Between Piers 7½ and 8, Light Street	(1)	25	750	50	.15	7.50
Old Bay Line Wharf, Light and Lee Streets	(1)	25	1,500	500	.15	75.00
Light and Lee Streets (Chesapeake Steamship Co.)	(1)	50	3,000	230	.15	34.50
Platt's Dock	(1)	25	1,000	163	.15	24.45
Inside Harris Creek	18	50	9,000	2,467	.15	370.05
North side Schall's Dock	15	25	2,000	513	.15	76.95
Back Basin	18	180	67,000	8,502	.15	1,275.30
North Dock Center Pier	18	75	150,000	5,167	.15	775.05
South Dock Center Pier	18	45	90,000	2,688	.15	403.20
Total			378,700	29,168	.15	4,375.20
SHIP CHANNELS AND HARBOR.						
Main channel in front of Piers 8 and 9, Locust Point	30	135	256,500	38,190	.15	5,728.50
Main channel in front of Pennsylvania Railroad Piers, Canton	35	135	72,000	24,369	.15	3,655.35
Catch Basin, Jones Falls	(1)	135	108,000	12,487	.15	1,873.05
In front of Booz Bros	24	90	27,000	5,906	.15	885.90
In front of Atlantic Wharf	20	50	9,000	2,698	.15	404.70
In front of Chipman's chair factory	15	50	4,750	587	.15	88.05
In front Thomas's Wharf, Boston Street	15	25	1,425	535	.15	80.25
Outside Harris Creek	18	75	11,250	2,290	.15	343.50
East side of Pier 8, Lancaster Street	20	45	14,250	1,590	.15	238.50
Total			504,175	88,652	.15	13,297.80
MIDDLE BRANCH DOCKS AND CHANNELS.						
Foot of Eutaw Street	15	50	22,050	2,759	.15	413.85
Foot of Howard Street	15	50	7,500	3,363	.15	504.45
Foot of Fort Avenue	15	75	15,700	2,988	.15	448.20
Front of garbage wharf, Spring Gardens	18	25	3,000	304	.15	45.60
Front of garbage wharf, Winans Cove	15	25	4,000	791	.15	118.65
Evans's marble yard	18	25	2,175	827	.15	124.05
Consumers' Wharf	15	25	3,250	587	.15	88.05
Chatsworth Run	15	50	9,750	4,768	.15	715.20
Launch Way, Light Street Bridge	15	25	1,000	383	.15	57.45
Upper end of main channel	18	75	19,500	8,453	.15	1,267.95
Bush Street Dock	18	75	80,500	12,262	.15	1,839.30
Bush Street Channel	18	90	87,750	23,429	.15	3,514.35
Total			256,175	60,914	.15	9,137.10

[1] Hard bottom.

From this table it will be seen that the following was expended:

Back basin and docks	$4,375.20
Ship channels and harbor	13,297.80
Middle branch docks and channels	9,137.10
Total	26,810.10

The following dredging was also done by the harbor board and charged to the construction of Piers Nos. 4, 5, and 6 and East Falls Avenue bulkhead.

TABLE 2.

	Cubic yards.
Main channel from Piers Nos. 2 to 5	79,601
Slip, Pier No. 4, Pratt Street	5,805
West side of Pier No. 3, Pratt Street	1,000
East side of Pier No. 3, Pratt Street	930
West side of Pier No. 2, Pratt Street	500
Between Piers Nos. 3 and 4, Pratt Street	450
Between Piers Nos. 4 and 5, Pratt Street	650
Jones Falls	38,079
Total	127,015

The amount of dredging done by private parties under permits granted by the harbor board was as follows:

	Cubic yards.
Burns & Russell, Dundalk	1,000
Davison Chemical Co	3,000
Evans Marble Co., south side of basin	4,500
Northern Central Railway piers, Lower Canton	125,000
Consolidated Gas, Electric Light & Power Co., Spring Gardens	3,500
Miscellaneous work	145,520
Total	282,520

The United States Government removed the following amounts from the Patapsco River and tributaries:

	Cubic yards.
Main channel, Patapsco River	1,990,158
Spring Garden Channel	228,249
Curtis Bay Channel	90,013
Total	2,308,420

TABLE 3.

Recapitulation:	Cubic yards.
Harbor board	305,749
United States Government	2,308,420
Private parties	282,520
Grand total	2,896,689

Respectfully submitted.

J. D. CUSTY, *Superintendent of Dredging.*

There yet remains about 1,500 linear feet of bulkhead to be constructed, and the harbor board requested an appropriation of $18,000 for the year 1912 to enable them to continue the work, but the board of estimates felt it advisable not to spend any more money in developing this property until they had some assurance that the city would net a return on the money invested. As they have this assurance, it is our hope that a sufficient amount will be set aside in the ordinance of estimates to allow us to continue with the work. There is even more reason now than ever before that this property should be closed in, as by a recent ruling of the Government engineer of this port no material taken from above mean low tide will be allowed to be deposited on the Government dump, which means it must be hauled to the mouth of the bay or pumped over some private bulkhead. The additional cost of pumping ranges from 5 to 7 cents a cubic yard, and unless the city can provide a place where this material may be pumped, it becomes necessary that they also pay for the privilege of depositing the material dredged behind a private bulkhead.

ICE BOATS.

Owing to the moderate temperature during the ice season of 1910 and 1911, the service of the boats was not required. The ice season did not begin until January, 1912, and will be taken up in the next annual report.

"*Annapolis*."—Steam capstan was installed on the afterdeck and one pair of davits constructed to take a 20-foot gasoline launch, the same being used as tender to convey lines from the ice boat to vessels in distress. Tubes were overhauled and new tubes placed where needed and the dynamo was overhauled and repaired.

"*Latrobe*."—The superheater of the *Latrobe* was overhauled and two new steel pipes installed. A new 12-inch 20-ampere type D, Rushmore lens, mirror projector searchlight was installed.

The signals from the pilot house to the engine room were rearranged on both boats to meet the Government requirements.

Both boats were fitted with a mechanical device for regulating the speed of the wheels, each wheel being run by independent engines. By fixing the rate of speed of each wheel the same number of revolutions, assisted very materially in the steering of the boats.

The wheels and arms of both boats were overhauled and repaired.

Both boats were hauled and the bottoms scraped and painted, this work being done under contract by the Skinner Shipbuilding & Dry Dock Co.

TUG "BALTIMORE."

The tug was hauled, scraped and painted, the searchlight and other lights overhauled. New rings were installed in both cylinders, boiler covered with asbestos, new rudder and rudder posts installed.

TABLE 4.—*Condensed log of the tugboat "Baltimore" for 1911.*

	Trips from berth and return.											
	Jan.	Feb.	Mar.	Apr.	May.	June.[1]	July.[1]	Aug.[1]	Sept.	Oct.	Nov.	Dec.
Ash scow	2	3	9	13	12				5	3	1	3
Around anchorage	13	21	20	16	8				10	19	13	25
Pier No. 4	15	12	27	20	3				18	19	23	30
Havre de Grace	1											
New quarantine	1									2		
Spring Gardens	10	1	1							1		
Western Maryland Pier	2		1		1							
Coal dock	6	2	3	2	2				2	1	2	4
City Pier	19	16	20	22	17				7	11	2	15
Curtis Creek	2		2									
Old quarantine	6	12	10	2	2				3	3	4	6
Back Basin	3			2					4	13	1	
Light Street Bridge	3		4	3	2				6	2	6	10
Bodkins Creek	1											
Stony Creek	1		2	1								3
Rock Creek	2				1							1
Reeders Wharf	1		4							1	1	2
Foot of Broadway	1									1		2
Pier No. 5	1								1			1
Magothy River	1		3		1							
Around harbor		5		2	3					2		
Bay Line Wharf		2										
Middle Branch		4		1					1			1
Baltimore & Ohio Pier No. 24		4										
Brooms Pier		1										
Northern Central R. R. Pier No. 6		1										
Pier No. 7		4	10	12	12				7	5	2	4
Maryland Dredging Co. yard		1	1							1		
Sparrow Point		1										
Montford Avenue Wharf			2									
Pier No. 6		1	3	3						1		
Pier No. 1			1		1							
Foot of Ann Street			1									

[1] Log from May 25 to Sept. 10 destroyed.

Breaking ice: January, 10 days.

Tied up for repairs: Jauuary, 1 day; February, 1 day; April, 2 days; May, 4 days; October, 3 days; November, 9 days; total, 20 days.

TABLE 4.—*Condensed log of the tugboat "Baltimore" for 1911*—Continued.

	Trips from berth and return.											
	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Pratt Street Bridge			2									
Sanford & Brooks's yard			3						1		2	
Down the bay			1		1					1		1
Ore Pier			1									
Chesterwood			1	1	1					1		
Canton Box Co. Wharf			1								1	2
Cahills Wharf			1								1	
Chester Street Wharf			2									
Gibbs Wharf			2									
Baltimore & Ohio Pier No. 10			2									
Boozes Wharf				1								
Pier No. 2				1	1					3	1	
Skinners Upper Dock				5								
Skinners Lower Dock				1						1	1	
Torsch's Wharf				1								
Spedden's Wharf				1								2
Block Street Wharf				4	24							
Retail Wharf					1							1
Fort Carroll					1							
Ferry Bar					2							
Locust Point					1							
Winans Wharf									10			
Love Point									1			
Gills Wharf									2	2		2
Foot of Sharp Street									1			
South River										1		
Baltimore & Ohio Pier No. 8										2		
Hendersons Wharf										1		
Canton Hollow											1	
Pier No. 15, Light Street											1	

ANCHORAGE BUOYS.

Broken buoys on anchorages were removed and replaced by new spars, and those buoys out of their respective positions were relocated.

HARBOR BOARD ANNEX.

In reference to same we respectfully refer you to the report of Mr. Edward L. Micheau, assistant engineer:

MR. O. F. LACKEY, *Harbor Engineer.*

DEAR SIR: Following is a report of the work accomplished by the harbor board annex force during the year 1911:

SURVEYS.

Survey for proposed recreation pier and improvements at the foot of Broadway.

Survey of second and third sections of proposed water-front street on the south side of harbor.

Hydrographic survey of a portion of the lower Patapsco River, covering an area of approximately seven square miles.

Survey work in connection with the construction of the Pratt Street Bridge over Jones Falls.

Several miscellaneous surveys in connection with various proposed improvements around the harbor.

Location of 2 sunken vessels in the Patapsco River.

PLANS, ESTIMATES, AND DESIGNS.

Condemnation plats for the first section of the proposed water-front street on the south side of harbor.

Location plan of the first section of the proposed water-front street on the south side of harbor.

Porfiles of the grades of the first section of the proposed water-front street and intersecting streets.

Location plan of the proposed recreation pier at the foot of Broadway.

Condemnation plat for the proposed recreation pier at the foot of Broadway.

Preliminary estimate of the cost of entire first section of proposed water-front street and piers on the south side of harbor.

Preliminary estimate of the cost of proposed recreation pier and improvements at the foot of Broadway.

Preliminary estimate of costs of proposed concrete bridges over Spring Gardens at the foot of Light Street.

Design of reenforced and gravity concrete retaining walls in connection with south side improvements.

Design of four different types of reenforced concrete and timber bulkhead construction.

Preliminary design of superstructure for proposed recreation pier at foot of Broadway.

Seventy-five miscellaneous plans and drawings.

Plotted entire shore line of lower Patapsco River on sectional sheets. (Scale, 200 feet to 1 inch.)

In addition to the above this office furnished the inspection and engineering supervision for the construction of the Pratt Street Bridge and the bulkhead at the old marine-hospital property.

Very respectfully,

EDWARD L. MICHEAU,
Assistant Engineer.

REPAIRS TO WHARVES.

In reference to same, we beg to respectfully refer you to the following report of the superintendent of wharves:

Mr. O. F. LACKEY, *Harbor Engineer.*

DEAR SIR: I respectfully beg to submit herewith my report for the year 1911:

Pulled up and redrove cluster of piles on east side of Pier No. 8 and pulled up old sunken piles in back basin.

Superintended the driving of cluster piles on west end of Pier No. 2 for the Atlantic Fruit Co., and removed sunken cluster of piles.

Painted and placed new buoys and removed old ones on the different anchorages from time to time.

Removed 20 old arms, 4 scarfs, 45 segments, and 12 bucket straps, bolts, and other iron work, replaced new windlass and capstan and made other repairs on the *Annapolis* and tug *Baltimore.*

Removed stone bulkhead foot of Dock Street and replaced same with timber and pile fenders.

Filled sunken hole behind sheet piling on Pier No. 1, about 75 feet long, washing out same and dumping about 80 loads of brickbats.

Superintended the building of 150 feet of bulkhead and dumping platform at Winans Cove for the street cleaning department; drove 19 new oak fender piles and placed scow load of ashes behind bulkhead for fill.

Painted fence between Piers Nos. 1, 2, 3, and 4.

Repaired fender and waling pieces on Piers Nos. 4, 5, and 6 and West Falls Avenue.

Filled sunken places on Pier No. 2 with stone and brickbats.

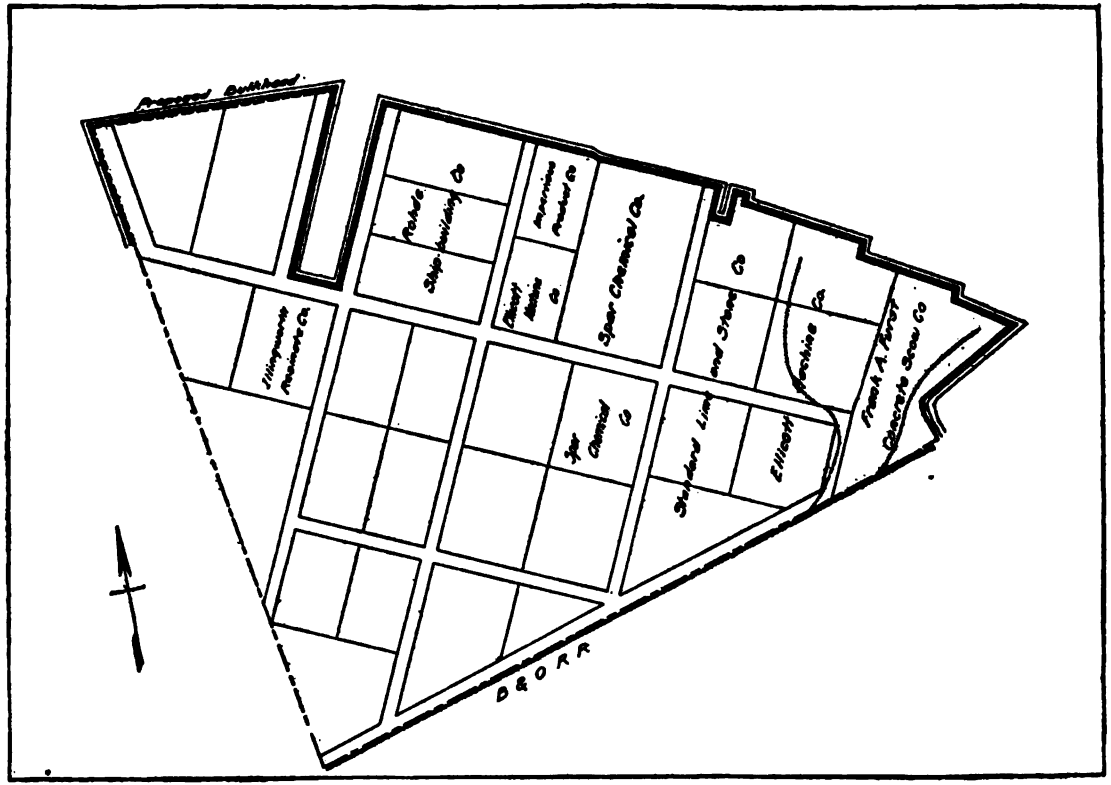
The wharf at Chesterwood was reported in bad condition and condemned as directed by you, and the owners were notified to rebuild at once.

Drove fender piles, bracing, and chocks, put in new straps, gates, and hinges, and repaired handrail and platform from time to time at small city pier at foot of Calvert Street.

I also made a general inspection of all wharf property, including Light Street Bridge, and superintended repairs, and likewise made a thorough examination of all wharf property for which permits were granted by the harbor board with a view of seeing that the work on same was properly carried out in accordance with the provisions of said permits.

Yours, respectfully,

WILLIAM A. MCDONOUGH,
Superintendent of Wharves.



Plat showing present condition of old Marine Hospital property.

LIGHT STREET BRIDGE.

After a thorough investigation it was found that there would be needed a substantial increase in the appropriation for the maintenance of Light Street Bridge in 1912 over the appropriation allowed in previous years, due to the fact that the larger timbers of the floor system and also the timbers of the frame bents were beginning to decay and a great number of the same will have to be replaced, the annual maintenance of the bridge being increased about $6,000.

As these timbers are of about the same age and subject to the same conditions, it is only fair to assume that within the next few years all frame bents, stringers, caps, etc., will have to be renewed, and it was for this reason that the harbor board, in its annual report of 1909, urgently recommended that a new bridge be constructed to replace the present bridge, as the maintenance on the present Light Street Bridge is almost sufficient in itself, it increasing yearly, to pay the interest and sinking fund on a loan sufficient to construct a new bridge.

A new Light Street Bridge is but part of the plan suggested by this department some years ago, worked out on a broad plan to develop the harbor of Baltimore.

The total annual appropriation asked for 1912 was $16,619. As it becomes necessary to replace the present timbers and piles of the old bridge, the cost of maintenance will increase in 1913 to about $22,000.

Distribution of loaded scows passing through draw.

Material.	Number.	Tons.
Coal	494	80,696
Garbage	494	48,305
Fertilizer	188	17,325
Brick	94	10,750
Sand	15	1,905
Marble	43	3,490
Plaster	9	1,825
Lumber	3	250
Oil	3	87
Mud	228	77,000
Barrels	6	110
Can goods	6	425
Empties	1,101	.....

Distribution of loaded barges passing through draw.

Material.	Number.	Tons.
Coal	50	28,250
Fertilizer	53	5,665
Brick	19	1,000
Lumber	72	20,400
Oil	55	26,700
Ice	16	13,900
Empties	317	.....

Distribution of loaded schooners passing through draw.

Material.	No.	Tons
Lumber	209	18,335
Ice	5	7,920
Wood	96	8,220
Manure	11	605
Hay	2	125
Empties	382	.....

Distribution of loaded steamers passing through draw.

Material.	No.	Tons.
Sand	23	6,6[illegible]
Lumber	11	2,5[illegible]
Empties	1,381	.....

Travel over bridge.

Single teams	102,740
Double teams	108,440
Street cars	105,454
Funerals	496

Items of repair work on bridge during the year.

Top floor, roadway:	
New linear feet	[illegible]
Relaid linear feet	2,6[illegible]
Bottom floor, roadway: New linear feet	6[illegible]
Footway:	
New linear feet	110
Relaid linear feet	[illegible]
New linear feet joists	19[illegible]
Caps under tracks: New linear feet	6[illegible]

REMOVAL OF ASHES.

As provided for by law, there is anchored off anchorage No. 1 a scow upon which are deposited ashes of the tugboats plying in the harbor to prevent the same from being thrown in the ship channels.

Nearly all of these ashes were deposited behind the property of the United States Revenue Service in Curtis Creek.

REMOVAL OF FLOATING MATTER.

For the purpose of keeping the harbor free of floating matter there are, during the months of June, July, August, and September one superintendent and six boatmen appointed by the department, and the material removed may be seen from the table below.

Removal of floating matter.

Floating matter.	Boat No. 1.	Boat No. 2.	Boat No. 3.	Boat No. 4.	Total.
Cats	55	122	88	100	[illegible]
Rats	151	199	135	157	[illegible]
Dogs	48	80	78	68	[illegible]
Fowl	40	90	50	22	[illegible]
Meat (pounds)	163	316	163	232	[illegible]
Turtles	10	13	5	8	[illegible]
Loads of melon rind	6	5	39	6	[illegible]
Loads of wood	102	148	82	86	[illegible]
Logs	17	182	30	52	[illegible]
Fish	.....	25	.....	25	[illegible]
Loads of melons	.....	23	15	25	[illegible]
Loads of garbage	.....	.....	.....	28	[illegible]
Horses	.....	2	.....	.....	[illegible]
Wagon	.....	1	.....	.....	[illegible]

NEW WORK.

South side.—Plans and surveys as provided for by chapter 485 of the acts of 1910 of the General Assembly of Maryland were approved by the harbor board under date of January 18, 1911, and the board of estimates under date of January 24, 1911.

The act further provided that the harbor board, in so far as it was able, should negotiate for and purchase the property needed for the contemplated improvements, and that all purchases should be made subject to the approval of the board of estimates. Where it was impossible for the harbor board to buy by private sale the same was to be condemned by the commissioners for opening streets.

While the abstract of titles was being drawn up by the legal department and the condemnation plat prepared, the harbor board were carrying on negotiations for property by private sale and succeeded in purchasing:

9 fee-simple interests, 7 leasehold interests, 9 reversionary interests	$142,630.16
Under agreement, but not purchased:	
4 fee-simple interests, 19 leasehold interests, 4 reversionary interests	120,020.32
Estimated value of entire property to be purchased	397,500.00
Total bought and under agreement in 1911, being 66 per cent of the whole	262,650.48
Balance to be purchased	134,849.52

We call special attention to the fact that the negotiations of the harbor board in no way held up or delayed the acquisition of the property as a whole, for, as previously stated, this board was purchasing property before the condemnation plans were completed and before the commissioners for opening streets were in a position to start making their awards and closing the condemnation proceedings.

The city surveyor was authorized to go ahead with the condemnation plat and the same was not turned over to the commissioners for opening streets this year. A preliminary plat, however, was furnished by the harbor board under date of December 15, 1911, and a letter written to the commissioners for opening streets requesting them to start condemnation of the property.

If there have been, seemingly, delays in connection with the work in South Baltimore, it has not been occasioned by any neglect or inactivity or want of energy on the part of this department, nor, as we see it, is any one department responsible. Any delay that may have been occasioned has been brought about by the laws governing the condemnation of property for public improvements, and until these laws are repealed and changed it will remain impossible for the city to acquire large tracts of property for public improvements within what may be termed a reasonable time.

The plans for the retaining wall of Federal Hill Park were virtually completed the latter part of this year, as also were the plans and profiles for the paving of the first section, but none of this work could be advertised and submitted to bidders until the city secured title to property. Where a number of buildings were purchased, they could not be removed, owing to the conditions of purchase in many instances, such as the tenant being granted the privilege of remaining in the building for a definite time, or, further, a building purchased in a row would have a building on either side and occupied to which the city had not title, and removing the one would endanger the others. Just as soon as the harbor board feel that they have secured a sufficient amount of property to warrant advertising for the removal of buildings, such a contract will be entered into and the buildings demolished as rapidly as possible. Even after the buildings have been removed all of the underground work must be first installed before we can proceed with the paving, this including sanitary and storm-water sewers, water mains, gas mains, and electrical conduits. All departments and corporations have been notified of the proposed work and supplied with a plan, requesting them to locate any proposed work that they wish to have installed in the bed of the street, so that there will be no unnecessary delay in the installation of this underground work as soon as the site is cleared.

The second section of the proposed commercial highway was approved by the harbor board under date of May 9, 1911, but to date has not been approved by the board of estimates, as provided for by chapter 485 of the acts of 1910 of the General Assembly of Maryland.

We feel that it would be very much to the interests of the city to have the second section approved and condemnation plat prepared and turned over to the

commissioners for opening streets and the property condemned, as it is possible that there will be a sufficient amount of money remaining out of the $2,000,000 loan, after the first section of the commercial highway and the recreation pier in east Baltimore are completed, to pay for the property in the second section.

East Baltimore.—What has been said in reference to the purchase of property for the commercial highway in south Baltimore may also be said in connection with the property needed for the commercial and recreation pier east of Broadway and south of Thames Street.

While there was no property actually bought in 1911, there were a number of agreements of sale entered into between the city and the property owners. The reason no property was actually acquired during this year was owing to the fact that all of the property needed was occupied and in use and under lease. As it was quite evident that some of the property in question would have to be condemned, and as little or no work could be accomplished until the city virtually owned it all, this department felt it would be poor policy, at a very large additional cost, to close deals for the property six or eight months prior to the time that they would get acquisition to it as a whole.

Condemnation plats were furnished the commissioners for opening streets by this department under date of November 23, 1911, and they were requested to proceed with the condemnation as soon as possible.

PRATT STREET BRIDGE.

Contract for the construction of Pratt Street Bridge was awarded September 7, 1910, the same to have been completed in 150 working days. Work was started October 5, 1910, but owing to a number of causes the progress of the work has been extremely slow.

The property needed for the widening of Pratt Street east of the falls was, by ordinance, to be acquired by a committee consisting of the mayor, the city comptroller, and the harbor engineer, and in the event of failure on the part of this committee to purchase the property by private sale, the same was to be condemned by the commissioners for opening streets. Here, again, we would like to state that the acquisition of property by private sale in no way delayed the final purchase of the property, for while titles were being searched and a condemnation plan prepared, which had to be done prior to the beginning of condemnation proceedings, the committee were endeavoring to enter into agreements with the respective owners, and, as on the south side as well as in east Baltimore, instead of being a delay to the final acquisition of the property, it has, to the contrary, helped the commissioners for opening streets very materially in making their awards.

The bridge was started before all of the property had been purchased by the city, and so far as this department is concerned everything that could have been done to advance the interests of the work was done.

While the delay of the contractor to complete the work in the specified time has been a source of regret to this department, on the other hand, it may be said that it has caused no direct inconvenience to the traveling public. We say this for the reason that during the construction work on the new bridge the traffic over the old bridge was in no way interfered with, and before traffic on the old bridge is stopped there will be more room and less congestion on the new section than there ever was on the old bridge.

There are a number of conditions that must be taken into consideration treating on this delay, but we feel it advisable to discuss this in a later report, depending upon the progress made from this date.

There were two recommendations of the harbor engineer to the members of the harbor board embodied in the annual report of 1910, which we most heartily indorse, the one being the construction of a belt-line railroad around the harbor of Baltimore, the same to connect with each and all of the railroad lines entering the city, the establishment of freight yards at points along the belt line from where freight can be distributed. Such a line to run, as far as possible, over the present tracks in the bed of streets and, where necessary, new tracks be laid. The belt line to be controlled by the mayor and city council of Baltimore. We feel this to be of equal importance as a further development of the water front by means of the construction of piers. All of the municipal piers should be so located and constructed as to provide the lessees the privilege of transporting freight either by water or rail, and not

restrict them to the hauling of freight over any one line, but by means of the belt line give them the advantage of shipping over that line having the most direct routes and over which they can secure the best rates.

The other recommendation made by the harbor engineer in his report of 1910 and which we deem well worthy of consideration is the improving or making navigable our small streams. This is more or less a State improvement, and the cost of the same we feel should be borne by the State.

There is no reason why the Patapsco River should not be made navigable from Baltimore to Relay at a nominal cost, and the same would open to water transportation all of that vast and rich territory on either side of this river.

Likewise Gwynns Falls could be made navigable from Baltimore inland about 3 miles at a nominal cost. The opening of these two streams would add nearly 30 miles of water front to industrial plants.

In conclusion, we wish to extend to his honor the mayor our sincere appreciation of his untold energy and hearty cooperation with this department in our efforts to produce results and handle the department on an economical and business basis.

Respectfully submitted.

OSCAR F. LACKEY,
WILLIAM D. SANNER,
JAMES S. ARMIGER,
WILLIAM G. KNAPP,
MARCELLUS H. GOODRICH,
Harbor Board.

Public wharves and docks (*see pp. 387–389*).

[Piers 1, 2, 3, 4, 5, 6, 7, and 8 and small pier, Pratt Street bulkhead, East Falls Avenue bulkhead, dredging (channel Wills Street to Light Street, etc.)]

Expenditures:

1904	$3,013.19
1905	5,659.39
1906	111,335.13
1907	205,767.97
1908	501,760.30
1909	[1] 646,533.98
1910	[2] 359,271.31
1911	224,280.86
Construction (harbor board)	2,057,622.13
Property (burnt district commission)	3,199,883.97
Total	5,257,506.10

[1] Includes appropriation for small pier ($600).
[2] Omitted, account recreation pier ($30.05).

Public wharves and docks (*see pp. 387–389*).

Items.	367 feet of bulkhead, Pratt Street from Light.	Pier 1.	Pier 2.	Pier 3.
Administration and engineering	$3,723.16	$10,022.69	$11,586.41	$13,562.[illegible]
Property	.....	264,133.34	516,492.85	384,021.[illegible]
Construction:				
Contract	.....	51,184.76	58,993.58	64,215.[illegible]
Extra work	1,968.67	29,758.28	34,786.93	40,021.[illegible]
Pratt Street bulkhead	28,522.98	7,579.58	7,579.58	7,579.[illegible]
Dredging:				
Contract	.....	19,774.30	24,523.50	35,035.[illegible]
Extra	.....	3,352.52	3,954.19	4,857.[illegible]
Paving, curbing, etc	.....	59.50	12,643.70	.....
Gross total	34,214.81	385,864.97	670,560.74	549,203.[illegible]
Credit	39.69	.....	11,381.28	7,670.[illegible]
Net total	34,175.12	385,864.97	659,179.46	541,633.[illegible]

Items.	Pier 4.	Pier 5.	Pier 6.	East Falls Avenue.
Administration and engineering	$20,756.15	$19,045.82	$22,001.02	$16,239.[illegible]
Property	194,284.02	889,588.25	951,363.76	.....
Construction:				
Contract	239,615.01	243,035.14	280,515.36	183,165.[illegible]
Extra work	2,125.15	1,575.52	2,459.79	1,074.[illegible]
Pratt Street bulkhead	7,280.39	5,784.44	2,293.88	.....
Dredging:				
Contract	39,140.40	84,960.48	169,577.76	19,07[illegible]
Extra	82.50	48.75	.....	.....
Paving, curbing, etc	37,527.84	18,464.45	49,008.49	.....
Gross total	540,811.46	1,262,502.85	1,477,220.06	219,556.[illegible]
Credit	303.00	7,830.31	8,937.86	.....
Net total	540,508.46	1,254,672.54	1,468,282.20	219,556.[illegible]

Items.	Pier 7.	Pier 8.	Small pier, Calvert Street.	Wills Street Channel.	Office building, Pier 4.	Dredging Jones Falls.
Administration and engineering	$479.95	$560.62	$66.85	$1,638.25	.....	$172.[illegible]
Construction:						
Contract	18,240.24	22,901.00	.....	.....	.....	.....
Extra	[1] 1,562.39	49.66	796.38	.....	$4,867.20	.....
Dredging; contract	.....	.....	.....	60,424.60	.....	5,711.[illegible]
Gross total	20,282.58	23,511.28	863.23	62,062.85	4,867.20	5,884.1[illegible]

[1] Of this, $1,512.73 account fire boat.

HARBOR.

Year ended Dec. 31, 1911.		Dr.	Cr.
APPROPRIATION.			
Unexpended balance of 1910		.....	$1,965.43
Ordinance No. 590, Dec. 2, 1910		.....	40,657.00
EXPENDITURES.			
Maryland Dredging & Contracting Co.: 178,734 cubic yards, at 15 cents		$26,810.10	
Advertising		75.07	
Supervision of dredging		2,136.76	
Surveys		3,502.37	
Derrick scow		1,965.43	
Anchorage buoys		524.68	
Department shed		414.85	
Department launch		2.33	
Harbor patrol		112.04	
Account harbor tube		6.10	
Tug Baltimore:			
Crew	$5,212.00		
Fuel	667.61		
Repairs	708.91		
Steamboat supplies	465.47		
Subsistence	17.64		
		7,071.63	
Unexpended balance		1.07	
Total		42,622.43	42,622.43

SALARIES.

APPROPRIATION.			
Ordinance No. 590, Dec. 2, 1910		.....	$6,086.67
EXPENDITURES.			
Salaries		$6,084.01	
Unexpended balance		2.66	
Total		6,086.67	6,086.67

ICE BOATS.

APPROPRIATION.				
Ordinance No. 590, Dec. 2, 1910			.....	$20,030.00
Acts 1910, chapter 409			.....	5,000.00
Received for cost of excursion			.....	75.00
EXPENDITURES.	"Annapolis."	"Latrobe."		
Advertising	$34.01	$34.00		
Crew	6,713.43	8,705.08		
Fuel	457.35	474.72		
Steamboat supplies	728.74	526.38		
Repairs	2,037.94	3,829.98		
Subsistence	191.28	84.24		
Department launch	124.10	.....		
Capstan	263.00	.....		
Windlass	610.12	.....		
Telephone	7.70	7.70		
Searchlight	.....	271.50		
	11,167.67	13,933.60	$25,101.27	
Unexpended balance			3.73	
Total			25,105.00	25,105.00

LEAGUE CITY PLANNING.

Year ended Dec. 31, 1911.		Dr.	Cr.
APPROPRIATION.			
From contingent fund			$200.00
EXPENDITURES.			
Photographs (harbor scenes)		$200.00	
		200.00	200.00

INCIDENTALS.

APPROPRIATION.			
Ordinance No. 590, Dec. 2, 1910			$500.00
EXPENDITURES.			
Oaths	$5.25		
Postage	10.00		
Books for office	7.00		
Trip to Philadelphia (city planning)	30.85		
Picture frames	3.50		
Telegrams and telephone	.99		
Engineering papers	4.50		
Annual report	146.80		
Typewriter	.50		
Clerk's bond	6.25		
Expressage	.75		
Meals	3.90		
Cigars for board	70.25		
Lunch (board meetings on boat)	205.55		
		$496.09	
Unexpended balance		3.91	
Total		500.00	500.00

REMOVAL OF ASHES.

APPROPRIATION.			
Ordinance No. 590, Dec. 2, 1910			$1,100.00
EXPENDITURES.			
Repairs	$152.78		
Supplies	29.76		
New boat	24.00		
Supervision of scow and dump	600.00		
		$806.54	
Unexpended balance		293.46	
Total		1,100.00	1,100.00

REMOVAL OF FLOATING MATTER.

APPROPRIATION.			
Ordinance No. 590, Dec. 2, 1910			$1,935.00
EXPENDITURES.			
Wages		$1,889.49	
Outfit		41.32	
Unexpended balance		4.19	
Total		1,935.00	1,935.00

LIGHT STREET BRIDGE.

Year ended Dec. 31, 1911.		Dr.	Cr.
APPROPRIATION.			
Ordinance No. 590, Dec. 2, 1910			$7,019.00
Received for repairs to bridge (U. R. & E. Co.)			63.04
EXPENDITURES.			
Advertising	$970.52		
Lights	283.90		
Wages	4,372.44		
Repairs	1,810.55		
Supplies	166.32		
Fuel	378.31		
		$7,082.04	
Total		7,082.04	7,082.04

REPAIRS OF WHARVES.

APPROPRIATION.			
Unexpended balance of 1910			$1,784.80
Ordinance No. 590, Dec. 2, 1910			9,560.00
Deposited as per page 389			1,557.73
EXPENDITURES.			
Advertising	$20.93		
Lumber	225.18		
Tools	171.69		
Pier No. 8	105.10		
Garbage dump	1,325.67		
Repairs, Back Basin	1,909.02		
Derrick scow	3,836.99		
Bulkhead, marine hospital	13.34		
Department launch	77.37		
Repairs, quarantine	18.51		
Small pier, foot of Calvert Street	248.37		
Light Street Bridge	2,569.84		
Supervision	1,200.00		
		$11,722.01	
Unexpended balance		1,180.52	
Totals		12,902.53	12,902.53

PUBLIC WHARVES AND DOCKS.

APPROPRIATION.			
Available for 1911			[1] $236,366.27
EXPENDITURES.			
Construction:[2]			
Launch Major—			
Repairs	$239.84		
Supplies	397.91		
		$637.75	
Engineering supplies		184.31	
Dredging supplies		19.05	
Changing cleats, Pier No. 5		31.66	
Cutting bulkhead, Pier No. 6		6.32	
Repairing valve, Pier No. 5		11.79	
Repairing bulkhead, Pier No. 5		188.30	
Repairing fenders, East Falls Avenue and Piers Nos. 4, 5, and 6.		250.83	
Paving Pier No. 4 (city engineer's department)		312.98	
Paving Pier No. 5		115.40	
Paving Pier No. 6 (D. V. Ault & Co.)		7,049.34	
Paving Pier No. 6, extra		20.90	
Paving Pier No. 1		59.50	
Painting fence, Pratt Street bulkhead		50.00	
Pure food exhibit		123.34	
Soundings, Jones Falls		18.33	
Soundings, Piers Nos. 1 to 6		38.00	

[1] Amount deposited not included (see p. 389).
[2] Administration and engineering to amount of $5,668.56 is properly chargeable to "Recreation Pier and South Side Harbor."

PUBLIC WHARVES AND DOCKS—continued.

Year ended Dec. 31, 1911.			Dr.	Cr.
EXPENDITURES—continued.				
Construction—Continued.				
Dredging, Jones Falls		5,884.10		
Dredging docks (Pratt Street)		539.50		
Filing cases in vault		433.85		
Stamps		10.00		
Operator for lantern		10.00		
Annex office—				
Repairs	$52.68			
Telephone	42.00			
Towel service	22.50			
Heat	50.00			
Supplies	21.89			
		189.07		
Work on Pier No. 2 for Standard Oil Co.		150.45		
Sanford & Brooks Co.		200,652.97		
			$216,977.74	
Salaries:[2]				
Engineers		$3,803.33		
Inspectors, transit party, etc.		2,774.00		
Dredging supervision		2,193.19		
Draughtsman and computer		1,908.00		
Stenographer		1,080.00		
Launch Major		420.66		
Watchmen		680.00		
Office work		112.50		
			12,971.68	
Unexpended balance			6,416.85	
Total			236,366.27	236,366.27

RECREATION PIER.

APPROPRIATION.				
Ordinance No. 590, Dec. 2, 1910			.....	$400,000.00
EXPENDITURES.[1]				
Title examining, recording, etc.		$2,848.48		
Advertising		12.95		
Engineering supplies		34.15		
Printing		6.50		
Stamps		5.00		
Test piles		94.84		
Engineers, rodmen, etc.		264.34		
			$3,266.26	
Balance carried forward			396,733.74	
Total			400,000.00	400,000.00

SOUTH SIDE HARBOR.

APPROPRIATION.				
Ordinance No. 590, Dec. 2, 1910			.....	$300,000.00
Received for rents			.....	830.46
EXPENDITURES.[1]				
Property		$142,630.16		
Title examining, recording, etc.		4,720.77		
Engineering supplies		94.15		
Printing		6.50		
Stamps		5.00		
Test holes		510.81		
Advertising		102.66		
Lunch (special board meeting)		12.35		
Engineers, inspectors, etc.		452.67		
			$148,535.07	
Balance carried forward			152,295.39	
Total			300,830.46	300,830.46

[1] See Public Wharves and Docks (p. 383).

WIDENING OF PRATT STREET.

Year ended Dec 31, 1911.		Dr.	Cr.
APPROPRIATION.			
Ordinance No. 590, Dec. 2, 1910			$185,000.00
Received for rent			163.20
EXPENDITURES.			
Property	$57,545.63		
Damages (closing East Falls Avenue)	400.00		
Testing materials	91.80		
Engineering supplies	40.35		
Engineers, rodmen, etc	736.00		
Inspectors	1,827.50		
D. V. Ault & Co	18,811.84		
		$79,453.12	
Balance carried forward		105,710.08	
Total		185,163.20	185,163.20

BULKHEAD, OLD MARINE HOSPITAL.

APPROPRIATION.			
Ordinance No. 590, Dec. 2, 1910			$18,000.00
EXPENDITURES.			
Advertising	$39.53		
Engineering supplies	4.98		
Supervision	751.83		
McLean Contracting Co	11,401.58		
		$12,197.92	
Unexpended balance		5,802.08	
Total		18,000.00	18,000.00

Deposited in city treasury.

Account "Public wharves and docks":		
Construction—received from Standard Oil Co	$157.88	
Pratt Street—received for rent	163.20	
South Side Harbor—received for rent	830.46	
		$1,151.54
Account "Repairs of wharves":		
Received from street-cleaning department for repairs to garbage dump	1,545.67	
For allowance on bucket for derrick scow	12.06	
		1,557.73
Account "Ice boats": Received for excursion on Aug. 18		75.00
Account "Light Street Bridge": Received from United Railways & Electric Co. for repair to Light Street Bridge		63.04
Revenue account:		
From sale of junk	$22.85	
From sale of harbor maps	25.25	
		48.10
Total		2,895.41

Respectfully submitted.

JAMES H. IRVIN, *Clerk.*

Approved:

O. F. LACKEY, *Harbor Engineer.*

Water terminal and transfer facilities contiguous to Baltimore Harbor, Md. (Patapsco River, Md.).

Map No	Owner.	Value	Description.										
			Length.	Width.	Elevation above mean low water.	Available mean low-water depth.	Construction.	Buildings.			Freight-handling devices.		
								Number.	Material.	Use.	Number.	Kind.	Capacity.
			Feet.	*Feet.*	*Feet.*	*Feet.*							*Tons.*
1	Baltimore City	(1)	551	150	6	24	Pile and timber construction to mean low water; sheet piles driven back of face line of pier, with a stone wall from mean low water to elevation 6; balance of pier solid fill; there is a 50-foot Belgian-block paved street down center of pier.	1	Wooden	Office, station, storage.	0		
								1	do	Office, storage	0		
2	do	(1)	638	200	6	24	Same as No. 1, with the addition of a Baltimore & Ohio R. R. track down the center of paved street.	1	Brick	do	0		
								0			0		
								0			0		
								0			0		
								1	Reenforced concrete.	Office	1	Hayward bucket & steam derrick.	2½
								1	do	Storage, sand and gravel.			
								1	Brick	Office, storage	0		
3	do	(1)	772	200	6	24	Same as No. 1	1	Wooden	Office and freight shed.	0		
4	do	(1)	927	200	6	24	Reenforced concrete retainers filled in solid.	1	do	Office	0		
5	do	(1)	1,150	200	6	24	Same as No. 4	1	do	Storage	0		
6	do	(1)	1,450	150	6	24	Same as No. 4, excepting that whole pier is paved with vitrified brick.	0			0		
7	do	(1)	400	100	6	24	Open-pile and timber construction.	1	Wooden	Quarters for fire boat.	0		
8	do	(1)	500	130	6	24	Same as No. 7	0			0		
	do	(1)	440	101	6	24	Bulkhead along north side.	1	Wooden	Office, storage	0		
7a	Baltimore & Philadelphia Steamboat Co.						Open pile						
	Starr Church						do						

8	Henry Williams, agent.	(1)	150		6	19	Open pile [illegible]	[illegible]	[illegible]	age.				
9	Baltimore City	(1)	130		6	19	do	1	do	do	0			
10	H. T. Keyser et al	(1)	100		6	19	do	1	do	do	0			
11	Baltimore, Chesapeake & Atlantic Ry. Co.	(1)	100	760	6	19	do	1	do	do	0			
12	do	(1)	100		6	19	do	1	do	do	0			
13	Mary A. Reifsnider	(1)	110		6	19	do	1	do	do	0			
14	H. Walsh et al	(1)	120		6	19	do	1	do	do	0			
15	City of Baltimore and State of Maryland.	(1)	90		6	19	do	1	do	do	0			
16	G. F. Sloan & Bro.	(1)	90		6	19	do	1	do	do	0			
17	Baltimore City	(1)	140	113	6	19	do	1	do	Freight and storage.	0			
18	Baltimore Steam Packet Co.	(1)	160	215	6	19	do		do	do	0			
19	Tolchester Beach Improvement Co.	(1)	125	70	6	19	do	1	do	Office and freight.	0			
20	do	(1)	125	50	6	19		1	do	do	0			
21	Chesapeake Steamship Co. of Baltimore.	240,000.00	180	150	6	19	Open-pile construction	1	Corrugated iron.	Freight	0			
22	do		325	118	6	19	Solid bulkhead construction.	1	do	do	0			
23	Evans Marble Co	(1)	230		5	18	Solid bulkhead	1 3	Brick Corrugated iron.	Office Shops	1 1	Steam derrick. Electric crane.	5 10	
24	Baltimore Fidelity Warehouse Co.	(1)	128		5	18	do	1	Six-story concrete warehouse.	Storage	1	Telpher	5	
25	New York & Baltimore Transportation Line.	(1)	88	49	5	18	Solid bulkhead and open-pile pier.	0			0			
26	do	(1)	280		5	18	Solid bulkhead	1	Wooden	Storage	0			
27	American Ice Co.	167,000.00	221		5	18	do	1 1 1	do do do	Ice plant Stable Storage	0 0 0			
28	Oliver Reeder & Sons	(1)	150	104		18	Open-pile pier and two electric marine railways of 90 and 400 tons capacity, respectively.	1	Brick and iron.	Office and machines.	0			
29	J. Bolgiano & Son	(1)	119	65 250		18 18	Open pile Solid bulkhead	1	Wooden	Storage	0			
30	Booz Bros	(1)	200	97			Two open-pile piers, one on each side of an electric marine railway of 2,000 tons capacity.	1	Brick	Office and storage.				
31	Reverdy Johnson estate, et al.	50,000.00		150		18	Solid bulkhead	0			0			

[1] Not given.

Water terminal and transfer facilities contiguous to Baltimore Harbor, Md. (Patapsco River, Md.)—Continued.

Map No.	Owner.	Value.	Description.										
			Length.	Width.	Elevation above mean low water.	Available mean low-water depth.	Construction.	Buildings.			Freight-handling devices.		
								Number.	Material.	Use	Number	Kind.	Capacity.
			Feet.	*Feet.*	*Feet.*	*Feet*							*Tons.*
32	J. S. Beacham & Bro.	80,000.00	.....	255	.....	18	Two marine railways of 100 and 800 tons capacity and a pile wharf 25 feet wide and 300 feet long	1 3	Wooden do	Office Shops	0	.....	.....
33	Reeder estate	(1)	200	40 60	.....	18 18	Open pile Solid bulkhead	0 0	.....	.....	0 0	.....	.....
34	Skinner Shipbuilding & Dry Dock Co.	(1)	620	480	.....	18	Graving dock, 62 feet wide at bottom with nominal draft of 22 feet; two marine railways with capacities of 800 and 1,200 tons.	1 4	Brick Wooden	Office, shops, etc. do	0 0	.....	.....
			350	18	5	18	Open-pile pier	.....	.....	.....	.....	.....	.....
			200	20	5	18	do	.....	.....	.....	.....	.....	.....
			200	20	5	18	do	.....	.....	.....	.....	.....	.....
35	Wm. Numsen & Sons	.....	.....	313	.....	18	Solid bulkhead and three open-pile piers, 300, 300, and 140 feet long.	1 1	Brick Brick and frame.	Office Packing house	0 0	.....	.....
36	E. Macintosh, Estate	(1)	.....	525	.....	.....	Solid bulkhead	1	Wooden	do	0	.....	.....
37	W. S. Cahill & Co.	75,497.00	.....	231	.....	.....	do	2	do	Shops	1	Shearpole	15
38	Baltimore City	(1)	.....	200	.....	.....	do	1 4 1	Brick Wooden Brick	Office Shops Office	0 1	.....	.....
												Electric derrick.	10
39	Platt Packing Co.	70,000.00	.....	112	.....	.....	Solid bulkhead and two open-pile piers, 40 by 30 feet, and 80 by 30 feet.	3 2	do Wooden	Canning houses do	0 0	.....	.....
40	Louis Grebb	50,000.00	.....	265	.....	.....	Solid bulkhead with an open-pile pier 200 feet long by 24 feet wide.	3	Wood and corrugated iron.	Packing house	0	.....	.....
41	Torsch Packing Co.	47,000.00	.....	200	.....	.....	Solid filled bulkhead and pier 140 feet wide which extends 100 feet into river.	2 3	Wooden Brick	Packing do	0 0	.....	.....
42	Unknown	.....	400	40	5	18	Open pile	0	.....	.....	0	.....	.....
43	do	.....	200	50	5	18	do	0	.....	.....	0	.....	.....

[1] Not given.

							floating dry dock of 204 by 76 feet, with capacity of 1,500 tons.						
46	Piedmont and Mount Airy Fertilizer Co.	29,900.00	90	130			Solid bulkhead	1	Brick	Office	0		
			90	30	5	19	Open-pile pier.	3	Wooden	Factories	0		
47	Armour Fertilizer Works.			400		20	Solid bulkhead	1	....do	Factory	0		
								1	Brick	Office	0		
47a	Georges Creek Coal & Iron Co.	30,000.00	400				Double-decked open-pile pier.	0			0		
48	Skinner Shipbuilding & Dry Dock Co.			340		21	Solid bulkhead and graving dock 450 feet long by 50 feet bottom width, 3 ways for shipbuilding and accompanying appliances.	1	Brick	Office	0		
								5	Wooden	Shops, etc	0		
211	Baltimore & Ohio R. R. Co.	Total value of these terminals $5,994,190. This includes Nos. 61, 66 and 94, and 55.	300			33	Open-pile, fitted for dump-direct from car to vessel.	0			0		
212	....do		150			20	....do	0			0		
213	....do		400			21	....do	0			0		
214	....do		180			24	....do	0			0		
210	....do		600			29	Solid bulkhead alongside dock.	1	Wooden	Storage	0		
209	....do		850	150		31	Open-pile, double-decked pier with tracks on upper and lower floors; also equipped as a wooden landing station for immigrants, as many as 2,500 being handled in one day; dockage for 3 ships.	1	....do	Storage and passenger station.	0		
208	....do		1,003	160		31	Open-pile foundation, double-decked, covered pier; dockage for 3 ships.	1	Wood and corrugated iron.	Freight station	1	Sprague electric telpher.	4
207	....do		300	150		31	Open-pile foundation, disconnected from shore and reached by lighters.	1	....do	....do	0		
206	....do		100	100		24	....do	1	....do	....do	0		
205	....do		330			21	Solid bulkhead	1	....do	....do	0		
203	....do		200	80		18	Open pile	0		....do	1	Crane	12
204	....do		200	110		20	....do	1	Wooden	....do	0		
223	....do		150			21	Car ferry slip	0		....do	0		
224	....do		400	150		33	Open-pile foundation, 3-decked pier.	1	Wood	....do	0		
236	....do		400	130		33	Open-pile foundation	1	....do	Grain elevator			
228	....do		220	40		24	Open-pile	0			0		
234	....do		1,160	120		30	Open-pile foundation	1	Wood	Freight station	0		
								1	....do	Elevator			
231	....do		1,125	108		30	....do	1	....do	Freight station			
233	....do		500	40		30	....do	1	....do	....do	0		

Water terminal and transfer facilities contiguous to Baltimore Harbor, Md. (Patapsco River, Md.)—Continued.

Map No.	Owner.	Value.	Description.										
			Length.	Width.	Elevation above mean low water.	Available mean low-water depth.	Construction.	Buildings.			Freight-handling devices.		
								Number.	Material.	Use.	Number.	Kind.	Capacity.
			Feet.	*Feet.*	*Feet.*	*Feet.*							*Tons.*
78	G. Ober & Sons Co.	$100,000.00	.....	320	.....	25	Solid bulkhead and 2 open-pile piers, one 175 by 30 feet and the other 180 by 50 feet.	3 3	Brick Wood	Office and factories.	0	.....	.....
79	Broadway & Locust Point Ferry Co.	40,000.00	140	50	.....	20	Pile ferry slip	1	....do	Station	0	.....	.....
49	Merchants & Miners' Transportation Co.	150,000.00	280	280	6	24	Solid bulkhead	1	Wood and corrugated iron.	Storage	0	.....	.....
50	....do	13,000.00	.....	40	.....	17	Marine railway	1 2	Brick Wooden	Office and shops	0	.....	.....
51	Miller, estate	13,000.00	230 110	40 40	.....	16	Open-pile pier Marine railway	1 2	Brick Wooden	....do	0	.....	.....
52	W. D. Gill & Son	150,000.00	.....	360	.....	24	Pile foundation with concrete wall and solid fill.	1	Brick	Office and storage.	1	Traveling crane.	2
53	American Lumber Co.	.....	200	122	.....	19	Open-pile and solid bulkhead.	1	....do	Factory	0	.....	.....
54	Thos. J. Shyrock & Co.	70,000.00	179	193	.....	17	Two open-pile piers and solid bulkhead.	1	Wooden	Office and storage.	0	.....	.....
55	Baltimore & Ohio R. R. Co.	(1)	1[illegible]	250	.....	17	....do	1 3	....do Brick	Storage Warehouses	0	.....	.....
56	Miller estate	.....	260 245	145	.....	18	Open-pile piers and solid bulkhead.	1 1	....do ....do	Packing Storage	0	.....	.....
57	Terminal Warehouse Co.	(2)	200	190	.....	18	Open-pile and solid bulkhead.	1 1	Wooden Brick, 6 stories	....do ....do	.....	Elevators	.....
57a	Pennsylvania R. R. Co.	.....	300	200	.....	18	2 open-pile piers and solid bulkhead.	.....	.....	.....	0	.....	.....
58	F. H. Roberts et al.	22,500.00	.....	160	.....	.....	Solid bulkhead	1 2	Brick Wooden	Packing ....do	.....	.....	.....
59	C. M. Stewart	.....	150	121	.....	18	Solid bulkhead and open pier.	1	Brick	Warehouse	0	.....	.....
60	F. W. Bonday et al.	40,000.00	300	120	.....	18	Solid bulkhead and open-pile pier.	4 2	....do Wooden	Storage ....do	0 0	.....	.....
61	Baltimore & Ohio R. R. Co.	(1)	.....	140	.....	18	Solid bulkhead	2	Brick	Packing	0	.....	.....
62	Rosenstock estate	.....	140	135	.....	18	Solid bulkhead and open-pile pier.	4	....do	Canning	0	.....	.....

63	John Boyle Co.	150,000.00	150	95		16	do.	2	do.	do.	0		
64	W. H. McGee	75,000.00	120	92		16	do.	4	do.	Storage and packing.	0		
65	American Ice Co.	118,000.00	120	228		16	Solid bulkhead and 2 open-pile piers.	1 1	do. Wooden	Warehouse. Ice plant.	0		
66	Baltimore & Ohio R. R. Co.	(1)		320		16	Solid bulkhead.	2	do.	Canning	0		
67	J. W. Woolford et al.	(2)	180	350		18	Solid bulkhead and open-pile pier.	2 2	Brick Wooden	Office and factory.	0		
68	Booth Packing Co.	100,000.00		145		18	Solid bulkhead.	7	Brick	Packing	0		
69	Graham estate		180	200			Solid bulkhead and 2 open-pile piers.	1	do.	Factory	0		
70	Canton Box Co.	300,000.00	200	400		12	do.	1 1	do. Wooden	Office and factory.	0		
71	Kensett estate	60,000.00	150	190		15	Solid bulkhead and open-pile pier.	1	Brick	Shops	0		
72	J. S. Young & Co.	250,000.00	435	300		19	Solid bulkhead and 2 open-pile piers.	22	do.	Manufacturing	0		
73	Canton Lumber Co.	200,000.00	200	200		19	2 open-pile piers	1 4	do. Wooden	Office. Storage mill.	0		
74	Spedden Shipbuilding Co.	53,000.00	375	200		19	Open-pile pier and marine railway of 1,200 tons capacity.	1 3	Brick Wooden	Office and shops.	2	Steel cranes.	10
75	Church Home and Infirmary.	25,000.00	130	110		15	Solid bulkhead and open-pile piers.	2 1	Brick Wooden	Packing and office.	0		
76	Western Maryland R. R. Co.	(2)	275	250		22	do.	9	Brick	Storage	0		
80	Standard Oil Co.	45,000.00		300		20	Unimproved	15	do.	do.	0		
81	do.	29,000.00	400	299		21	Solid bulkhead and 2 open-pile piers.	3	do.	Warehouse, pump house, cooperage.	0		
82	Hopkins estate	106,000	200	458		21	Part of water front unimproved, balance solid bulkhead and open-pile pier.	(3)	Brick	Storage	0		
83		88,000	250	100		20	Solid bulkhead and open-pile pier.	2	Wooden	Manufacturing	0		
84	The Canton Co.		150	80		24	Solid bulkhead and open-pile pier and dry dock of 400 tons capacity.	2	do.	Office and shops.	0		
85	Baltimore Copper, Smelting & Rolling Co.	23,000	330	109		20	Solid bulkhead and open-pile pier.						
86	Baugh Chemical Co.	(2)	150	375		14	do.	1 4	Brick Wooden	Office and manufacturing.	1	Electric conveyor.	5
87	Ward estate	(2)	400	200		26	do.	2	do.	Chemical works.	1	do.	5
88	Miller Fertilizer Co.	50,000		200		17	Solid bulkhead	6 1	do. Brick	Factory	1	Electric hoist.	(4) 1,200
89	American Agricultural Chemical Co.	100,000	236	324		23	Solid bulkhead and open-pile pier.	4 1	Wooden Brick	Office and factory.	1	do.	

[1] See No. 208. [2] Not given. [3] Various. [4] Per day.

Water terminal and transfer facilities contiguous to Baltimore Harbor, Md. (Patapsco River, Md.)—Continued.

Map No.	Owner.	Value.	Description.										
			Length.	Width.	Elevation above mean low water.	Available mean low-water depth.	Construction.	Buildings.			Freight-handling devices.		
								Number.	Material.	Use.	Number	Kind	Capacity.
			Feet.	*Feet.*	*Feet.*	*Feet.*							*Tons.*
90	American Agricultural Chemical Co.	75,000	201	204	.....	17	Solid bulkhead	5	Brick and wooden.	Factory	1	Electric hoist.	.....
91	The Tin Decorating Co.	60,000	.....	287	.....	18	do	.....	.....	.....	.....	.....	.....
92	The Canton Co	25,000	175	100	.....	17	Solid bulkhead and open-pile pier.	2 1	Brick Wood and iron	Office and factory.	0	.....	.....
77	Terminal Warehouse Co.	(1)	100	1,100	.....	20	do	23	Concrete	Warehouse	0	.....	.....
94	Baltimore & Ohio R. R. Co.	(2)	350	300	.....	21	Pile ferry slip with floating bridge.	0	.....	.....	0	.....	.....
95	Canton Co	.....	.....	800	.....	17	Solid bulkhead	0	.....	.....	0	.....	.....
96	do	.....	.....	400	.....	17	do	0	.....	.....	0	.....	.....
97	do	.....	.....	800	.....	17	Solid bulkhead under construction.	0	.....	.....	0	.....	.....
98	Pennsylvania R. R. Co.	.....	600	40	.....	.....	Open-pile pier	1	Wood	Elevator	0	.....	.....
99	do	.....	600	100	.....	.....	Open pile	1	Reenforced concrete.	do	0	.....	.....
140	Canton Co	6,750	150	70	.....	21	Open pile and solid bulkhead.	0	.....	.....	0	.....	.....
141	do	.....	100	100	.....	20	Solid bulkhead	0	.....	.....	0	.....	.....
142	do	.....	350	70	.....	20	Open pile and solid bulkhead.	0	.....	.....	0	.....	.....
143	Pennsylvania R. R. Co.	.....	900	240	.....	30	do	.....	.....	.....	.....	.....	.....
144	do	.....	900	220	.....	30	do	1	Wood	Freight elevator	.....	.....	.....
145	do	.....	800	180	.....	30	do	1	do	do	.....	.....	.....
146	do	.....	170	150	.....	30	do	.....	.....	.....	.....	.....	.....
147	do	.....	500	200	.....	30	do	1	Wood	Freight elevator	.....	.....	.....
148	do	.....	500	240	.....	30	do	1	do	do	.....	.....	.....
149	do	.....	800	200	.....	30	do	1	do	do	.....	.....	.....
150	do	.....	230	70	.....	27	do	.....	.....	.....	.....	.....	.....
151	do	.....	800	250	.....	28	do	0	.....	.....	0	.....	.....
152	do	.....	500	200	.....	31	do	1	Wood	Freight elevator	0	.....	.....
153	do	.....	400	230	.....	22	Open-pile pier	1	do	Storage	.....	.....	.....
154	do	.....	800	100	.....	19	Pile ferry slip and floating bridge.	.....	.....	.....	.....	.....	.....
155	do	.....	300	300	.....	23	Open-pile pier and solid bulkhead.	.....	.....	.....	.....	.....	.....

157	.....do.....			300		16	.....do.....	1	Wood.....	Storage.....				
158	.....do.....			250		25	Solid bulkhead and open-pile piers.	(3)	Various.....	.....do.....				
57a	.....do.....		300	250		16	.....do.....	(3)	.....do.....	Office storage manufacturing.				
170	Canton Co.....	239,000.00		1,000		24	Large commercial piers under construction.	0			0			
161	Baltimore City.....		500	480		20	Being torn out for construction of new public piers.	0			0			
20a	.....do.....			400	6	26	Pile ferry slip.....	1	Wood.....	Station.....	0			
160	Broadway & Locust Point Ferry.		80	60										

Map No.	Owner.	Occupant.	Physical railroad connections.		Highway approaches.	Use.			Terms.	Prorating agreements.
			Existing.	Possible.		Purpose.	Largest vessel.	Conditions.		
							Tons.			
1	Baltimore City.....	West half Baltimore, Chesapeake & Atlantic Ry. Co.	No.....	Yes.....	Excellent.	Reception and delivery of passengers and freight to and from Chesapeake Bay points. Freight destined for points beyond Baltimore is loaded on lighters and transferred to railroad pier at Canton.	1,110	Exclusive.....	Lease, rental $16,097.60 per year.	Yes, on long-distance traffic.
		East half, United Fruit Co...	No.....	Yes.....	...do.....	Delivery of fruit cargoes from foreign ports into wagons and also into railroad cars on barges.	.....	.....do.....	Lease, rental of $15,071.04 per year.	No.

[1] Not given. [2] See No. 208. [3] Various.

Water terminal and transfer facilities contiguous to Baltimore Harbor, Md. (Patapsco River, Md.)—Continued.

Map No.	Owner.	Occupant.	Physical railroad connections.		Highway approaches.	Use.			Terms.	Pro-rating agreements.
			Existing.	Possible.		Purpose.	Largest vessel.	Conditions.		
							Tons.			
		Standard Oil Co.	No.	Yes.	do.	Shipment of products in small vessels.		Exclusive.	Lease, rental $4,321.96 per year.	No.
		Carolina Steamship Co.	No.	Yes.	do.	Reception and delivery of freight.		do.	Variable rental, dependent upon annual shipments.	No.
		Atlantic Fruit Co.	No.	Yes.	do.	Unloading of fruit cargoes from foreign ports into wagons on wharf and railroad cars on barges alongside.		do.	Lease, rental $9,665.48 per year.	No.
2	do.	Lanassa & Goffe.	No.	Yes.	do.	do.		do.	Lease, rental $7,002.18 per year.	No.
		Arundel Sand & Gravel Co.	With electric street railway only.	Yes.	do.	Unloading sand and gravel from barges into storage bins, thence into cars and wagons.		do.	Lease, rental $7,158.24 per year.	No.
		Martin Wagner Co.	No.	Yes.	do.	Reception and storage of canned goods.		do.	Lease, rental $2,910.15 per year.	No.
3	do.	Merchants & Miners Transportation Co.	No.	Yes.	do.	Delivery and reception of coastwise freights and passengers.	3,648	do.	Lease, rental $40,000 per year.	No.
4	do.	City, for general use.	No.	Yes.	do.	For any vessel entering port.		General public	Small dockage and wharf charge, amounting in aggregate to about $47,000 per year.	No.
5	do.	South end, Baltimore Steam Packet Co.	No.	Yes.	do.	Reception and delivery of freight.		Exclusive.	Rental of $17,875.08 per year.	No.
		Balance, city, for general use.				Same as No. 4.		General public	Same as No. 4.	No.
6	do.	City, for lumber trade.	No.	Yes.	do.	Reception and storage of lumber.		General lumber trade.	15 cents per 1,000 feet b. m. for each 10 days or part thereof.	No.
7	do.	City of Baltimore.	No.	Yes.	do.	City ice boats, tugboats, and fire department.		Exclusive.	Not given.	No.

7a	do. Baltimore & Philadelphia Steamboat Co. Starr Church.	Baltimore & Philadelphia Steamboat Co.	No.	No.	Excellent.	Passengers and freight both ways between Baltimore & Philadelphia via Chesapeake & Delaware Canal.	445	Exclusive.	Rental, $10,000 per year, owned by occupant; rental $2,500 per year.	No.
8a	Henry Williams, agent	Baltimore, Chesapeake & Atlantic Ry. Co. and Maryland, Delaware & Virginia Ry. Co.	No.	No.	do.	Passengers and freight from and to points on Chesapeake Bay and tributaries; freight for railroads is transferred on lighters to Canton, lower harbor.	1,110	do.	Yearly rental, $6,750.	Yes.
9	Baltimore City.	do.	No.	No.	do.	do.	1,110	do.	Yearly rental, $3,618.	Yes.
10	H. T. Keyser et al.	do.	No.	No.	do.	do.	1,110	do.	Yearly rental, $2,150.	Yes.
11	Baltimore, Chesapeake & Atlantic Ry. Co.	do.	No.	No.	do.	do.	1,110	do.	Used by owner.	Yes.
12	do.	do.	No.	No.	do.	do.	1,110	do.	do.	Yes.
13	Mary A. Reifsnider.	do.	No.	No.	do.	do.	1,110	do.	Yearly rental, $1,650.	Yes.
14	H. Walsh, et al.	do.	No.	No.	do.	do.	1,110	do.	Yearly rental, $4,575.08.	Yes.
15	City of Baltimore and State of Maryland.	do.	No.	No.	do.	do.	1,110	do.	Yearly rental, $5,510.10.	Yes.
16	G. F. Sloan & Bro.	do.	No.	No.	do.	do.	1,110	do.	Yearly rental, $2,850.	Yes.
17	Baltimore City.	Baltimore Steam Packet Co.	No.	No.	do.	General freight and passengers; freight for railroads is transferred on lighters.	2,000	do.	Yearly rental, $4,750.	Yes.
18	Baltimore Steam Packet Co.	do.	No.	No.	do.	do.	2,000		Used by owner.	
19	Tolchester Beach Improvement Co.	Tolchester Beach Improvement Co.	No.	No.	do.	Summer excursions and general passenger and freight business.	1,023	Exclusive.	do.	No.
20	do.	do.	No.	No.	do.	do.	1,023	do.	do.	No.
21	Chesapeake Steamship Co. of Baltimore.	Chesapeake Steamship Co. of Baltimore, Md.	No.	No.	Excellent.	General passenger and freight business between points on James and York Rivers, Va., and interchange of traffic with southern and northern railroads at this port. The interchange is made via lighters.	2,400	do.	do.	Yes.
22	do.	do.	No.	No.	do.	do.	2,400	do.	do.	Yes.

Water terminal and transfer facilities contiguous to Baltimore Harbor, Md. (Patapsco River, Md.)—Continued.

Map No.	Owner.	Occupant.	Physical railroad connections.		Highway approaches.	Use.			Terms.	Pro-rating agreements.
			Existing.	Possible.		Purpose.	Largest vessel.	Conditions.		
							Tons.			
23	Evans Marble Co.	Evans Marble Co.	No.	No.	Good.	Reception of marble from foreign and domestic ports and general marble-yard work.		Exclusive.	Used by owner.	No.
		do.	No.	No.	do.	do.		do.	do.	No.
24	Baltimore Fidelity Warehouse Co.	Baltimore Fidelity Warehouse Co.	No.	No.	do.	Storage.		do.	do.	No.
25	New York & Baltimore Transportation Line.	H. C. McComas Coal Co.	No.	No.	do.	Coal yard.		do.	Not given.	No.
26	do.	New York & Baltimore Transportation Line.	No.	No.	do.	General freight between New York and Baltimore.	1,200	do.	Used by owner.	
27	American Ice Co.	American Ice Co.	No.	No.	do.	Manufacture of ice.		do.	do.	No.
		do.	No.	No.		Stable.				
		do.	No.	No.		Storage.				
28	Oliver Reeder & Sons.	Oliver Reeder & Sons.	No.	No.	Good.	Ship yard.	400	Exclusive.	Used by owner.	No.
29	J. Bolgiano & Son.	J. Bolgiano & Son, seed importers.	No.	No.	do.	Reception and shipment of seed, etc.		do.	do.	No.
30	Booz Bros.	Booz Bros.	No.	No.	do.	Ship repair yard.	2,000	do.	do.	No.
31	Reverdy Johnson estate, et al.	do.	No.	No.	do.	Laying up vessels.	2,000	do.	Not given.	No.
32	J. S. Beacham & Bro.	J. S. Beacham & Bro.	No.	No.	do.	Ship yard.	800	do.	Used by owner.	No.
33	Reeder estate.	Vacant.	No.	No.	do.	Vacant.				No.
34	Skinner Shipbuilding & Dry Dock Co.	Skinner Shipbuilding & Dry Dock Co.	No.	No.	do.	Shipyard.		Exclusive.	Used by owner.	No.
35	Wm. Numsen & Sons.	Story Bunnell Co.	No.	No.	do.	Packing house.		do.	Yearly rental $500.	No.
		G. M. Roberts & Co.	No.	No.	do.	do.		do.	Yearly rental $700.	No.
		Wm. Numsen & Sons.	No.	No.	do.	do.		do.	Used by owner.	No.
36	E. Macintosh, Estate.	C. L. Applegarth & Co.	No.	No.	do.	do.		do.	Rental not given.	No.
37	W. S. Cahill & Co.	W. S. Cahill & Co.	No.	No.	do.	Machine and boiler works.		do.	Used by owner.	No.
38	Baltimore City.	Maryland Dredging & Contracting Co.	No.	No.	do.	Repair and storage yard for plant.		do.	Not obtainable.	No.
39	Platt Packing Co.	Platt Packing Co.	No.	No.	do.	Packing houses.		do.	Used by owner.	No.
40	Louis Grebb.	Louis Grebb.	No.	No.	do.	do.		do.	do.	No.
41	Torsch Packing Co.	Torsch Packing Co.	Yes.		do.	Packing house.		do.	do.	No.
42	Unknown.	Vacant.	No.	Yes.	do.	Vacant.		Vacant.	Vacant.	No.
43	do.	do.	No.	Yes.	do.	do.		do.	do.	No.
44	do.	do.	No.	Yes.	do.	do.		do.	do.	No.

	Airy Fertilizer Co.					and reception of raw materials which are brought in sailing vessels.				
47	Armour Fertilizer Works.	do	Yes		do	do		do	do	No.
47a	Georges Creek Coal & Iron Co.	do	Yes		do	Coaling vessels		do	do	No.
48	Skinner Shipbuilding & Dry Dock Co.	do	Yes		Excellent	Shipyard		do	do	No.
211	Baltimore & Ohio R. R. Co.	Baltimore & Ohio R. R. Co.	Yes		Good	Coaling vessels		do	do	No.
212	do	do	Yes		do	do		do	do	No.
213	do	do	Yes		do	do		do	do	No.
214	do	do	Yes		do	do		do	do	
210	do	do	Yes		do	Import and export freight.		do	do	
209	do	do	Yes		do	Import and export freight and immigrants. A part is also reserved for bonded goods.		do	do	
208	do	do	Yes		do	Import and export freight.		do	do	
207	do	do	No	No	Water	do		do	do	
206	do	do	No	No	do	do				
205	do	do	Yes		Good	Domestic and coastwise freight.				
203	do	do	Yes		do	Export, import, and domestic freight.		do	do	
204	do	do	Yes		do	do		do	do	
223	do	do	Yes		do	Transfer of cars to and from barges.		do	do	
224	do	do	Yes		do	Import and export freight.		do	do	
236	do	do	Yes		do	Grain elevator, 1,200,000 bushels capacity.		do	do	
228	do	do	Yes		do	Import and export freight.		do	do	
234	do	do	Yes		do	Bonded import freight grain elevator, 1,800,000 bushels capacity.		do	do	
231	do	do	Yes		do	Foreign and coastwise freight.		do	do	
233	do	do	Yes		do	Import and export freight.		do	do	
78	G. Ober & Sons Co.	G. Ober & Sons Co.	Yes		do	Manufacture of fertilizers.		do	Used by owner.	
79	Broadway & Locust Point Ferry Co.	Owner	No	No	do	Passengers and vehicles		do	do	No.
49	Merchants & Miners' Transportation Co.	do	No	No	do	Freight storage	3,648	do	do	
50	do	The Chesapeake Marine Railway.	No	No	Fair	Marine repairs	600	do	Not given	No.
51	Miller, estate	Marine Railway, Machine & Boiler Works.	No	No	do	do	100	do	Yearly rental $1,900.	No.

Water terminal and transfer facilities contiguous to Baltimore Harbor, Md. (Patapsco River, Md.)—Continued.

Map No.	Owner.	Occupant.	Physical railroad connections.		Highway approaches.	Use.			Terms.	Pro-rating agreements.
			Existing.	Possible.		Purpose.	Largest vessel.	Conditions.		
							Tons.			
52	W. D. Gill & Son	W. D. Gill & Son	Yes		Good	Lumber yard		Exclusive	Used by owner	No.
53	American Lumber Co.	American Lumber Co	Yes		do	do		do	do	No.
54	Thos. J. Shyrock & Co.	Thos. J. Shyrock & Co	Yes		do	do		Open to public at usual wharfage.	do	No.
55	Baltimore & Ohio R.R. Co.	Baltimore & Ohio R. R. Co	By barges.	Yes	do	General freight		do	Used by Baltimore & Ohio R. R. Co. and general public.	
56	Miller estate	W. H. Killian & Co Owner			do	Packing house General public		Exclusive Public	Yearly rental $1,300 Used by owner	No. No.
57	Terminal Warehouse Co.	Terminal Warehouse Co	Yes		do	do		do	Dependent on size of vessel.	No.
57a	Pennsylvania R. R. Co.	Pennsylvania R. R. Co	Yes		do	General freight		do		
58	F. H. Roberts et al	Lord, Mott & Co	No	Yes	Excellent	Packing house		Exclusive	Yearly rental $1,200	No.
59	C. M. Stewart	Owner	Yes		do	General freight		Public		No.
60	F. W. Bonday et al	do	Yes		do	do		do	Used by owner	No.
61	Baltimore & Ohio R.R. Co.	J. S. Farren & Co	No	Yes	do	Packing house		Exclusive		No.
62	Rosenstock estate	Miller Bros. & Co	No		do	General packing		do	Yearly rental $2,500	No.
63	John Boyle Co	Owner	Yes		do	Canning and manufacturing.		do	Used by owner	No.
64	W. H. McGee	W. H. McGee & Co	Yes		do	Packing				No.
65	American Ice Co	Owner	No	Yes	do	Storage and manufacture of ice and reception of same from vessels.		Exclusive	Used by owner	No.
66	Baltimore & Ohio R. R. Co.	R. E. Roberts Co	Yes		do	General canning		do	Not given	No.
67	J. W. Woolford et al	D. E. Foote & Co	No	Yes	do	do		do	Yearly rental $8,768.32.	No.
68	Booth Packing Co	Owner	Yes		do	General packing		do	Used by owner	No.
69	Graham estate	Gibbs Preserving Co	Yes		do	Manufacture of preserves		do	Not given	No.
70	Canton Box Co	Owner	Yes		do	Manufacture of boxes		do	Used by owner	No.
71	Kensett estate	Edw. Renneberg & Sons	No		do	Machine and boiler works		do	Leased at $2,000 per year.	No.
72	J. S. Young & Co	Owner	Yes		do	Manufacture of licorice paste.		do	Used by owner	No.

						ing mill.				
74	Spedden Shipbuilding Co.	do	No	Yes	do	Shipyard	1,200	do	do	No.
75	Church Home and Infirmary.	Schall Packing Co	No	Yes	do	Packing		do	Not given	No.
76	Western Maryland R. R. Co.	Owner	Yes		do	Storage and reception of freight.		do	Used by owner	No.
80	Standard Oil Co	do	Yes		Good	Storage of exports		do	do	No.
81	do	do	Yes		do	Exporting products		do	do	No.
82	Hopkins estate	Baltimore Copper Works	Yes		Good	Refining of copper		do	Not given	No.
83		Hubbard Fertilizer Co	Yes		do	Reception of raw materials and manufacture of fertilizers.		do	$1,800 per year rental for use of land.	No.
84	The Canton Co	C. L. Rohde & Sons	No	Yes	Excellent	Ship yard		do	$1,200 per year for land; improvements assessed at $6,000.	No.
85	Baltimore Copper, Smelting & Rolling Co.	Owner	No	Yes	Good	Copper refining		do	Used by owner	No.
86	Baugh Chemical Co	do	Yes		do	Manufacture of fertilizers		do	do	No.
87	Ward estate	Griffith & Boyd Co	Yes		do	do		do	Not given	No.
88	Miller Fertilizer Co	Owner	Yes		do	do		do	Used by owner	No.
89	American Agricultural Chemical Co.	do	Yes		do	do		do	do	No.
90	do	do	Yes		do	do		do	do	No.
91	The Tin Decorating Co.	do	Yes		do	Being improved for manufacturing.		do	do	No.
92	The Canton Co	H. J. McGrath Co	Yes		Excellent	Canning		Public	Ground rent of $1,200 per year.	No.
77	Terminal Warehouse Co.	Baltimore Fidelity Warehouse Co.	Yes		Good	Freight storage		Exclusive	Used by owner	No.
94	Baltimore & Ohio R. R. Co.	Owner	Yes		do	Transfer of cars from float to shore.		do	do	
95	Canton Co	do	No	Yes	do	Development		do		No.
96	do	do	No	Yes	do	do		do		No.
97	do	do	No	Yes	do	do		do		No.
98	Pennsylvania R. R. Co.	do	Yes	Yes	do	General freight		do		
99	do	do	Yes	Yes	do	Grain elevator		do		
140	Canton Co	do	No	Yes	do	General		do	Used by owner	No.
141	do	do	No	Yes	do	do		do	do	No.
142	do	do	No	Yes	do	do		do	do	No.
143	Pennsylvania R. R. Co.	do	Yes		do	General imports and exports.		do	do	
144	do	do	Yes		do	do		do	do	
145	do	do	Yes		do	Grain elevator		do	do	
146	do	do	Yes		do	General imports and exports		do	do	
147	do	do	Yes		do	do		do	do	
148	do	do	Yes		do	do		do	do	

Water terminal and transfer facilities contiguous to Baltimore Harbor, Md. (Patapsco River, Md.)—Continued.

Map No.	Owner.	Occupant.	Physical railroad connections.		Highway approaches.	Use.			Terms.	Pro-rating agreements.
			Existing.	Possible.		Purpose.	Largest vessel.	Conditions.		
							Tons.			
149	Pennsylvania R. R. Co.	Owner	Yes		Good	General imports and exports.		Exclusive	Used by owner	
150	do	do	Yes		do	do		do	do	
151	do	do	Yes		do	Coal pier		do	do	
152	do	do	Yes		do	General imports and exports.		do	do	
153	do	do	Yes		do	Export and import freight		do	do	
154	do	do	Yes		do	Transfer of cars				
155	do	do	Yes		do	Coal pier		Exclusive	Used by owner	
156	do	do	Yes		do	do		do	do	
157	do	do	Yes		do	Domestic freight		do	do	
158	do	do	Yes		do	do		do	do	
57a	do	do	Yes		do	General freight		do	do	
17	Canton Co	Various tenants	No	Yes	do	Packing houses		Exclusive to each tenant.	Not given	No.
161	Baltimore City		No	Yes	Excellent.	General ocean freight and recreation pier.		Public		No.
28a	do		No	No	do	General		do		No.
160	Broadway & Locust Point Ferry.	Owner	No	No	do	Passengers and vehicles		do	Used by owner	No.

CURTIS BAY, MD.

(*a*) This project is for a channel 30 feet deep by 250 feet wide from the main 35-foot channel in Patapsco River to a point near the Curtis Bay coal piers of the Baltimore & Ohio Railroad, a distance of about 2¼ miles. In Curtis Bay there are the large coal piers of the Baltimore & Ohio Railroad Co., where four ships can be loaded at one time, and also the piers of various manufacturing and distributing concerns. These piers are owned by the interests using them and are efficient for the purpose for which they are used.

(*b*) Some of these piers have physical railroad connection.

(*c*) The highways leading to the piers are ordinary macadam roads, which are sufficient, as the incoming and outgoing commerce is handled by railroad or water.

There are inclosed a descriptive table and map showing the location of the piers along this part of Baltimore Harbor.

(*a*) General locatio ı and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Water terminal and transfer facilities contiguous to Baltimore Harbor, Md. (Curtis Bay, Md.).

Map No.	Owner.	Value.	Description.										
			Length.	Width.	Elevation above mean low water.	Available mean low-water depth.	Construction.	Buildings.			Freight-handling devices.		
								Number.	Material.	Use.	Number.	Kind.	Capacity.
			Feet.	*Feet.*	*Feet.*	*Feet.*							*Tons.*
125	The Texas Co	(1)	525	760	.....	23	Solid bulkhead and open-pile pier.	(2)	Various	Office and storage.	.....	Pump and pipe line.	.....
120	United States Fertilizer Co.	(1)	350	176	.....	25	Solid bulkhead and open-pile double-decked pier.	1	Wood	Office and factory.	1	Electric conveyer.	.....
119	Atlantic Fertilizer Co	(1)	250	150	.....	25	....do	1	....do	....do	1	...do	.....
121	Standard Guano Co	(1)	200	.....	.....	18	....do	1	....do	....do	0	.....	.....
122	Standard Wholesale Phosphate Co.	(1)	.....	280	.....	16	Solid bulkhead and open-pile pier.	1	....do	....do	1	Electric derrick.	10
123	Monumental Shell Co	$3,000.00	50	150	.....	14	Open-pile pier and concrete bulkhead.	1	....do	....do	0	.....	.....
124	Davison Chemical Co	(1)	250	250	.....	25	Solid bulkhead and open-pile pier with steel double-decked superstructure and also concrete wharf 125 feet long.	(2)	Protected steel.	....do	1	Electric traveling crane.	.....
132	Baltimore & Ohio R. R. Co.	530,000.00	.....	.....	.....	30	Open-pile double-decked coal pier capable of handling 14,000 tons of coal per day which is dumped directly from cars into vessels, also a general freight pier of open-pile construction.	(2)	Wood	Office and storage.	.....	.....	.....

Map No.	Owner.	Occupant.	Physical railroad connections.		Highway approaches.	Use.			Terms.	Pro-rating agreements.
			Existing.	Possible.		Purpose.	Largest vessel.	Conditions.		
							Tons.			
125	The Texas Co	Owner	Yes		Fair	Oil tanks and refining of bituminous products.		Exclusive	Used by owner	No.
120	United States Fertilizer Co.	do	Yes		do	Manufacture of fertilizers		do	do	No.
119	Atlantic Fertilizer Co.	do	Yes		do	do		do	do	No.
121	Standard Guano Co	do	Yes		do	do		do	do	No.
122	Standard Wholesale Phosphate Co.	do	Yes		do	do		do	do	No.
123	Monumental Shell Co.	do	No		do	Manufacture of poultry food.		Open to public.	Used by owner, wharfage charged to public.	No.
124	Davison Chemical Co.	do	No		do	Reception of raw material, manufacture of sulphuric acid and shipment of same.		Exclusive	Used by owner	No.
132	Baltimore & Ohio R. R. Co.	do	Yes		do	Coaling, both cargo and bunker, and general import and export freight.	20,000	Public	Used by owner; wharfage charged to public.	

[1] Not given. [2] Various. [3] Displacement.

SOUTHWEST BALTIMORE HARBOR, MD.

(*a*) This project (known also as the Middle Branch or Spring Garden Channel) is for a channel 27 feet deep and 100 feet wide from near the upper end of the main 35-foot channel in Patapsco River to near the foot of Eutaw Street, Baltimore, a distance of about 4 miles. In this branch of the harbor there are various wharves scattered along the northerly shore from Fort McHenry for a distance of about 3 miles to the harbor at southwest Baltimore, which is a manufacturing district, where the wharves are adequate, private, and used by the owners.

(*b*) Some of these wharves have physical railroad connection.

(*c*) Improved and adequate roadways are provided.

There are inclosed a descriptive table and map showing the location of the piers along this part of Baltimore Harbor.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

Map No.	Owner.	Value.	Description.										
			Length.	Width.	Elevation above mean low water.	Available mean low-water depth.	Construction.	Buildings.			Freight-handling devices.		
								Number.	Material.	Use.	Number.	Kind.	Capacity.
			Feet.	*Feet.*	*Feet.*	*Feet.*							*Tons.*
103	McLean Contracting Co	$300,000.00	600	694	6	16	Solid bulkhead and open-pile piers and marine railway.	1 1	Wood..... .....do.....	Office and shops. Clubhouse.....	.....	.....	.....
104a	American Agricultural Chemical Co.	(1)	.....	500	.....	16	Solid bulkhead.....	2 1	.....do..... Brick.....	Office and factory.	1	Electric conveyor.	.....
117	Page Engineering Co..	(1)	700	173	.....	16	Solid bulkhead and open pile.	1	Concrete.....	Shop.....	1	Crane....	10
116	Winans estate.....	(1)	.....	200	.....	8	Dry dock of 50 tons' capacity.	4	Wooden.....	Office and shop..	.....	.....	.....
115	.....do.....	(1)	1,300	.....	.....	12	Solid bulkhead.....	.....	.....	.....do.....	.....	.....	.....
114	.....do.....	(1)	300	12	.....	15	Open-pile wharf.....	.....	.....	.....	.....	.....	.....
113	Gittings and Dugan estates.	(1)	150	300	.....	8	Open-pile wharves and solid bulkhead and marine railway.	2	Wood.....	Office and shops.	1	Derrick..	5
109	Gittings estate.....	1,500.00	.....	100	.....	4	Solid bulkhead.....	1	.....do.....	Office and shop..	.....	.....	.....
108	Thompson Chemical Co	500,000.00	.....	597	.....	11	Partly solid bulkhead; balance unimproved.	(2)	.....do.....	.....	.....	.....	.....
112	Consolidated Gas, Electric Light & Power Co. of Baltimore.	.....	.....	1,322	.....	11	Solid bulkhead.....	(2)	Brick, iron, and wood.	Office, etc.....	.....	.....	.....
107	Evans Marble Co.....	80,000.00	.....	125	.....	9	.....do.....	1	Wood.....	Office and shop.	.....	.....	.....
111	American Ice Co.....	12,500.00	.....	150	.....	11	.....do.....	3	.....do.....	Office and storage.	.....	.....	.....
110	Spring Garden Land & Wharf Co.	(1)	120	.....	.....	11	.....do.....	3	.....do.....	.....	.....	.....	.....
106	.....	10,000.00	200	.....	.....	.....	.....do.....	2 2	.....do..... Brick.....	Office and shop..	.....	.....	.....
105	Swindell Bros.....	15,000.00	100	.....	.....	11	.....do.....	4	Wood.....	.....do.....	.....	.....	.....
104	Consolidated Gas, Electric Light & Power Co. of Baltimore.	.....	.....	230	.....	5	Concrete bulkhead.....	1 1	Reenforced concrete. Brick.....	Power..... Office.....	1	Electric hoist.	.....
102	Carr-Lowery Glass Co..	95,000.00	.....	500	.....	5	Solid bulkhead.....	(2)	Concrete, brick, and iron.	Glass works.....	.....	.....	.....

[1] Not given.

[2] Various.

Water terminal and transfer facilities contiguous to Baltimore Harbor, Md. (Southeast Baltimore)—Continued.

Map No.	Owner.	Value.	Description										
			Length.	Width.	Elevation above mean low water.	Available mean low-water depth.	Construction.	Buildings.			Freight-handling devices		
								Number.	Material.	Use.	Number.	Kind.	Capacity.
			Feet.	*Feet.*	*Feet.*	*Feet.*							*Tons.*
101	Westport Barrel & Basket Co.	(1)	250	300	.....	7	Solid bulkhead and open pile.	1	Wood.....	Factory.....	.....	.....	.....
100	Westport Paving Brick Co.	120,000.00	120	16	.....	22	Open pile.....	.....	.....	.....	1	Crane....	5
301	Western Maryland R. R. Co.	(1)	734	60	.....	31	Open-pile coal pier.....	.....	.....	.....	.....	.....	.....
302	.....do.....	(1)	840	260	.....	31	Solid bulkhead and open-pile pier.	1	Wood and iron	Storage.....	.....	.....	.....
303	.....do.....	(1)	830	300	.....	31	Solid bulkhead and open-pile pier under construction.	.....	.....	.....	.....	.....	.....
130	Ellicott Machine Corporation.	(1)	.....	700	.....	15	About 40 feet solid bulkhead; balance unimproved.	3	Wood and iron	Office and shops.	1	Tower derrick.	6
129	Furst Concrete Scow Construction Co.	125,000.00	.....	400	.....	15	1,000-ton marine railway..	2	.....do.....	.....do.....	.....	.....	.....
128	The Raisin Monumental Co.	(1)	.....	460	.....	15	Solid bulkhead.....	3	Wood.....	Office and factory.	1	Electric unloading device.	.....
127	F. S. Royster Guano Co.	(1)	600	325	.....	15	Solid bulkhead and open-pile pier.	2	.....do.....	.....do.....	1	...do.....	.....
126	Martin Wagner Co.....	150,000.00	223	00	.....	15	.....do.....	22	Various.....	Office, factory, residences.	.....	.....	.....

[1] Not given.

Water terminal and transfer facilities contiguous to Baltimore Harbor, Md. (Southwest Baltimore) –Continued.

Map No.	Owner.	Occupant.	Physical railroad connections.		Highway approaches.	Use.			Terms.	Pro-rating agreements.
			Existing.	Possible.		Purpose.	Largest vessel.	Conditions.		
							Tons.			
103	McLean Contracting Co.	Owner	Yes		Excellent	Storage yard and plant		Exclusive	Used by owner	No.
		Baltimore Yacht Club			do	Pleasure		do	Not given	No.
104a	American Agricultural Chemical Co.	Owner	Yes		do	Manufacturing agricultural chemicals.		do	Used by owner	No.
117	Page Engineering Co.	do	Yes		do	Machine shop		do	do	No.
116	Winans estate	C. Durm & Son	No	No	Good	Building and repair boats.	50	do	Yearly rental, $300.	No.
115	do	Bear Creek Fertilizer Co	No	No	do	Shipment of raw materials.		do	Yearly rental	No.
		M. W. Adams Tug Boat Co				Headquarters		do	Unobtainable	No.
		George Rhinehart Co				Shipment of fertilizers		do		No.
		Garbage Reduction Co				Shipment of garbage		do		No.
114	do	Louis Keizer	No	No	Good	Yachting		do	Unobtainable	No.
113	Gittings and Dugan estates.	The Marine Yacht Co	No	No	do	Boat building and repairing.	300	do	Yearly rental, $750.	No.
109	Gittings estate	F. B. Eisenbrandt	No	No	do	Machine shop		do	Yearly rental, $300.	No.
108	Thompson Chemical Co.	Owner	No	No	do	Manufacturing chemicals		do	Used by owner	No.
112	Consolidated Gas, Electric Light & Power Co. of Baltimore.	do	Yes		do	Manufacturing illuminating gas.		Wharf open to public.	do	No.
107	Evans Marble Co	do	No	Yes	do	First-class marble yard		Exclusive	do	No.
111	American Ice Co	do	No	Yes	do	Reception of ice from vessels and storage of same.		do	do	No.
110	Spring Garden Land & Wharf Co.	Warren Electric Co	No	Yes	do	Reception of raw materials.		Public	Yearly rental, $750.	No.
106		Wm. Becker & Co	No	Yes	do	Cooperage		Exclusive		No.
105	Swindell Bros	Owner	Yes			Manufacturing glass		do	Used by owner	No.
104	Consolidated Gas, Electric Light & Power Co. of Baltimore.	do	Yes		Good	Generating electric power		do	do	No.
102	Carr-Lowery Glass Co.	do	Yes		do	Manufacturing glass		do	do	No.
101	Westport Barrel & Basket Co.	do	Yes			Manufacturing barrels and baskets.		do	do	No.
100	Westport Paving Brick Co.	do	Yes		Good	Clay products		do	do	No.
301	Western Maryland R. R. Co.	do	Yes		do	Coal tipple		do	do	No.

Water terminal and transfer facilities contiguous to Baltimore Harbor, Md.) Southeast Baltimore)—Continued.

Map No.	Owner.	Occupant.	Physical railroad connections.		Highway approaches.	Use.			Terms.	Pro-rating agreements.
			Existing.	Possible.		Purpose.	Largest vessel.	Conditions.		
							Tons.			
302	Western Maryland R. R. Co.	Owner	Yes		Good	General freight		Exclusive	Used by owner	No.
303	do	do	Yes		do	Coal tipple		do	do	No.
130	Ellicott Machine Corporation.	do	Yes		Fair	Machine shop and boat building.	500	do	do	No.
129	Furst Concrete Scow Construction Co.	do	Yes		do	Boat and scow building and repairing.	1,000	do	do	No.
128	The Raisin Monumental Co.	do	Yes		do	Manufacturing of fertilizers.		do	do	No.
127	F. S. Royster Guano Co.	do	Yes		do	do		do	do	No.
126	Martin Wagner Co	do	Yes		do	Packing, storage, and canning.		do	do	No.

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ELK AND LITTLE ELK RIVERS, MD.

(*a*) There are wharves on both sides of the Elk River at Elkton. On the south side one wharf is owned by George T. Jeffers and the adjoining one by the Kenmore Pulp & Paper Co. Mr. Jeffers allows all boats to use his wharf on equal terms. The Kenmore Co.'s is not much used, because there is not sufficient depth of water in front of it. On the north or town side there is the wharf of the Scott Fertilizer Co., which is occupied by their plant and not available for use by the public; next, the Kenmore Pulp & Paper Co.'s wharf, which is in constant use for their own business. On the Little Elk there is the wharf of Mr. W. H. Mackall, which is used by all on equal terms.

These wharves are built of logs tied back into the banks and filled in with earth. There are no warehouses, derricks, cranes, or other appliances for handling heavy freight. The elevation of all wharves is about 5 feet above mean low water.

(*b*) There is no connection between the railroads and these wharves available for the public.

(*c*) There are good roads to these wharves.

(*d*) The present wharves appear to be sufficient to accommodate the traffic.

SUSQUEHANNA RIVER, MD.

(*a*) *At Havre de Grace.*—There are four solid bulkhead wharves at this place below the Philadelphia, Baltimore & Washington Railroad bridge. Pusey & Co. own a wharf 300 by 100 feet; Vanneman, one 250 by 100 feet; and S. J. Senaca, fruit packer, one 100 by 50 feet. The above wharves are improved with one or more small frame buildings and are about 5 feet above mean low water; neither of them has freight-handling devices. All of them are open to public water carriers on equal terms.

The Tolchester Steamboat Co. owns a wharf about 500 feet long and 125 feet wide, which is used exclusively by its owners. It has no special freight-handling devices, is improved with a frame warehouse, and is about 5 feet above mean low water.

Above the Philadelphia, Baltimore & Washington Railroad bridge at Havre de Grace there is about 550 feet of bulkhead wharf front owned by citizens of the town, and is about 5 feet above mean low water. This wharf property is improved with large two-story frame warehouses, which are used for the storage of ice. There are no special freight-handling devices and the wharf is open to all water carriers on equal terms.

At Perryville, on the east side of the river, immediately below the highway bridge, the Philadelphia, Baltimore & Washington Railroad have an open pile wharf about 200 feet long, 40 feet wide, and about 5 feet above mean low water. It has no special freight-handling devices and is used exclusively for business of the railroad company.

At Frenchtown, on the same side, where the Baltimore & Ohio Railroad bridge crosses the Susquehanna River, there is about 600 feet

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

of bulkhead wharf front, about 150 feet of which is above the railroad bridge, improved with a small frame house, used for storage purposes. The remaining 450 feet is below the railroad bridge and is improved with a large two-story frame house, used for the storage of ice. The property is all about 5 feet above mean low water and owned partly by the Baltimore & Ohio Railroad Co. and the Maryland Ice Co. There are no special freight-handling devices and all water carriers have equal privileges.

At Port Deposit, which is the head of navigation, there are three pieces of bulkhead wharf front.

The Tolchester Steamboat Co. own and occupy exclusively a piece about 150 feet long, improved with a one-story frame warehouse, with no special freight-handling devices.

The town of Port Deposit owns a piece 150 feet long, with no buildings and no special freight-handling devices. It is open to all water carriers on equal terms.

The McClenahan Granite Co. own and occupy about 300 or more feet, improved with derricks and cranes for the handling of stone. This is not open to public water carriers.

All of the wharf property at Port Deposit is 6 feet above mean low water.

(*b*) There are no physical railroad connections with any of the above-mentioned wharves on the Susquehanna River except those of S. J. Senaca, fruit packer, at Havre de Grace; the Philadelphia, Baltimore & Washington Railroad Co., at Perryville; and the McClenahan Granite Co. of Port Deposit. The two former have physical connection with the Philadelphia, Baltimore & Washington Railroad and the latter with the Columbia & Port Deposit Railroad.

(*c*) The approaches to all of the aforementioned wharves are first class.

(*d*) The terminals named are considered sufficient for present needs.

ROCKHALL HARBOR, MD.

(*a*) There are two wharves at this place. One is located at Sharp Landing, in the inner harbor, and is a solid bulkhead structure, extending out 150 feet, 80 feet wide at the inner end, gradually narrowing to 20 feet at the outer, and about 5 feet above mean low water. It is improved with one two-story frame warehouse, 30 by 2[illegible] feet, and is owned by the Sharp estate. It is open to all water carriers on equal terms, and has no special freight-handling devices.

The second wharf is about 1 mile distant, in the upper part of the harbor. This is an open-pile structure about 250 feet long and about 20 feet wide, with a pier at the outer end about 35 feet wide. It is improved with two frame buildings, one two-story 30 by 15 feet, the other a one-story structure about 20 by 10 feet. This wharf is about 5½ feet above mean low water, and is owned and used exclusively by the water division of the Maryland, Delaware & Virginia Railway Co.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*b*) Neither of these wharves has railroad connections, the nearest ailroad being about 12 miles distant.

(*c*) The approaches are over good county roads.

(*d*) These terminals are considered sufficient for present needs.

QUEENSTOWN HARBOR, MD.

(*a*) There are three wharves in this harbor; two are owned by the Maryland, Delaware & Virginia Railway Co.

No. 1 is an open-pile structure 500 feet long, 25 feet wide, with a ier of the same construction at the outer end 200 feet long, which s 75 feet wide at its inner end, gradually narrowing to 25 feet at uter end, which is improved with two 1-story frame buildings, one 5 by 15 feet, used as a freight house, the other 30 by 20 feet, used as assenger rooms.

No. 2 wharf of the same company is also an open-pile structure bout 475 feet long and 40 feet wide out for a distance of 150 feet, radually widening to 100 feet at outer end, forming a pier, which is mproved with a 2-story frame building about 200 feet long by 30 eet wide. Located to the north of the pier and about 100 feet back rom the outer end there is a grain elevator built on piling and connected to the wharf with a spur.

Wharf No. 3 is owned by the Love Point & Queenstown Navigation o., and is also an open-pile structure 625 feet long by 20 feet wide, vith a pier of the same construction at the outer end 125 feet long, arying in width from 70 to 25 feet.

All of the above-mentioned wharves are about 5½ feet above mean ow water.

Wharves Nos. 1 and 2 are used exclusively by their owners. Wharf o. 3 is open to all water carriers on equal terms. None have special reight-handling devices.

(*b*) Wharf No. 2 has physical railroad connection with the Maryand, Delaware & Virginia Railway.

(*c*) Good oyster-shell roads connect with all of the above-menioned wharves.

(*d*) These water terminals are considered sufficient for present eeds.

CLAIBORNE HARBOR, MD.

(*a*) There are two wharves in this harbor. The Baltimore, Chesaeake & Atlantic Railway Co. have one, 950 feet in length and 50 feet ide. About 450 feet of this structure at the shore end is solid; the emainder is open pile. It is improved with a frame house 100 by 40 eet, located about 130 feet from the outer end, which has an open rame shed adjoining the inner end, extending shoreward 70 feet by 0 feet wide, with railroad tracks passing and extending to the far nd of the house, and used as a terminal and transfer station for the

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

Baltimore, Chesapeake & Atlantic Railway Co. This property owned and used exclusively by the company and not open to water carriers. The second wharf or pier is owned and used exc sively by the Eastern Shore Development Steamship Co. It is a so bulkhead structure about 25 feet wide, extending across a piece marsh out to within 15 feet of the inner end of the United Sta Government channel, forming a triangle at the outer end, which covered with an open shed. The dredging from the Governme channel to this wharf was done by the owner of same. The elevati of both wharves is about 5 feet above mean low water; and there no special freight-handling devices at either of them.

(*b*) The second wharf mentioned has no physical railroad conne tions.

(*c*) Good oyster-shell and earth roads are provided.

(*d*) These wharves are apparently sufficient to accommodate pr ent traffic.

CAMBRIDGE HARBOR, MD.

(*a*) This harbor, below the county drawbridge, has about 3 feet of solid bulkhead water front on the westerly side, and abo 1,500 feet of a similar structure on the easterly side, all of which owned and occupied by numerous parties and interests and open public carriers, excepting 550 feet at the outer end on the wester side of the harbor; this frontage is owned and occupied exclusive by the Baltimore, Chesapeake & Atlantic Railway Co. While t daily rate of wharfage could not be ascertained, it is believed to reasonable.

Above the county drawbridge there is about 600 feet more of sol bulkhead water front, which is open to public carriers at sm charges.

No freight handling devices exist at any of the wharves, and th general level is about 5 feet above mean low water.

(*b*) The Cambridge & Seaford Railroad enters the town on t east side. So far as known, there is no interchange of freight water.

(*c*) The approaches to all of this water front are good, be through the streets of Cambridge.

(*d*) The present wharves appear to be sufficient to accommod the traffic.

CHESTER RIVER, MD.

(*a*) The improved portion of this river extends from Crumpton Jones Landing.

At Crumpton there is about 500 feet of bulkhead wharf, 150 f of which is on the south side of the river and owned by the Ma land, Delaware & Virginia Railway Co. It is improved with two story frame buildings, one 50 by 30 feet and used as a granary,

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

other is 30 by 20 feet and used as a general freight warehouse. This property is used exclusively by the owners and not open to all water carriers.

On the north side of the river there is 350 feet of bulkhead wharf, 200 feet of which is below the drawbridge at Crumpton; the remaining 150 feet is just above the bridge—all owned by Dr. Shepard, of Crumpton. The 200-foot portion below the bridge is improved with a 1-story frame canning factory and a 1-story frame warehouse 70 by 25 feet and used as a storage house. The 150 feet above the bridge is improved with a warehouse 40 by 25 feet. All of this 350 feet of wharf property is open to all water carriers on equal terms.

The height of the wharves above mean low water is about 5 feet. There are no special freight-handling devices on any of the wharves.

At Fords Wharf.—This wharf is about 2 miles above Crumpton and is a bulkhead structure extending out 30 feet to deep water, 100 feet long, filled in with oyster shells and earth, improved with a 1-story frame warehouse about 25 by 15 feet. It belongs to a Mr. Ford and is open to all water carriers on equal terms. This wharf is about 5 feet above mean low water and has no special freight-handling devices.

At Kirbys Landing there is a solid bulkhead wharf extending out about 20 feet to deep water, 120 feet long, improved with a 1-story frame warehouse 50 by 20 feet. It is owned by the Kirby estate and is about 4 feet above mean low water. It has no special freight-handling devices and is open to all water carriers on equal terms.

(*b*) There are no railroads within 5 miles of Crumpton, 2½ miles of Fords Wharf, and 1½ miles of Kirbys Landing.

(*c*) Good oyster-shell roads connect with the property at Crumpton. The approaches to Fords Wharf and Kirbys Landing are over good county roads.

(*d*) The water terminals at all of the above-mentioned places are considered sufficient for present needs.

CHOPTANK RIVER, MD.

At Denton.—(*a*) There is about 500 feet of solid bulkhead water front at this place below the county bridge, which is located at the foot of the main street of the town. About 280 feet of this wharf property belongs to the Baltimore, Chesapeake & Atlantic Railway Co., for its boats, and is improved with a large one-story freight house, with office and waiting room at one end. The remaining 220 feet is owned by private parties, and open to all water carriers at reasonable wharfage. The general elevation of the wharves on Choptank River is about 5 feet above mean low water. There are no freight-handling devices at any of them.

(*b*) There is no physical connection with railroads; the nearest railroad station is about 1 mile distant.

(*c*) The wharves are reached by the streets of the town.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*d*) The wharves appear to be sufficient to meet present needs.

Between Denton and Greensboro, the head of navigation and about 8 miles distant from Denton:

(*a*) There were formerly four log-pen wharves which were used along the river between the above-mentioned points, but have since become obsolete, owing to the proximity of railroads.

At Greensboro there are two pieces of wharf property. D. S. Brockway, at the lower end of the town, owns about 250 feet of bulkhead wharf, improved with a freight shed about 150 feet long, built of wood, and open to public carriers at reasonable wharfage.

About 1,000 feet farther up there is a dock or slip about 100 feet long, piled on both sides, which was formerly owned by Mr. Satterfield. It is improved with necessary warehouses and sheds, and open to public water carriers at wharfage which is stated to be reasonable.

(*b*) There is no physical connection with railroads, but the Oxford branch of the Delaware division of Philadelphia, Baltimore & Washington Railroad passes the town about three-fourths mile from the wharf property.

(*c*) The approach is over good shell roads.

(*d*) The wharves are thought to be sufficient for present demands.

WARWICK RIVER, MD.

(*a*) This is an arm of the Choptank River, 1½ miles long. Its terminus is at Secretary Landing, and is improved with a solid bulkhead wharf 120 feet long by 110 feet wide, containing a large frame warehouse 75 feet long and 30 feet wide. This wharf is about 6 feet above mean low water. This property is owned by private parties, a part of which is rented to the Baltimore, Chesapeake & Atlantic Railway Co. The remainder is used by public carriers at a rate that can not be ascertained, but believed to be reasonable. There are no freight-handling devices.

(*b*) There is no railroad connection.

(*c*) A good oyster-shell road connects with the wharf.

(*d*) No additional wharves apparently are necessary at the present time.

WICOMICO RIVER, MD.

(*a*) The improved portion of this river extends from Fruitland to Salisbury, about 3 miles. There were formerly four old wharves between the above-mentioned points, two of logs and filled in and two open-pile structures, all of which have been out of use and gone to pieces several years back or since the Government improved the river to the city of Salisbury, where there are now several thousand feet of solid bulkhead water front.

The Baltimore, Chesapeake & Atlantic Railway Co. owns about 500 feet, which is improved with a large freight warehouse and shed

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

Tilghman & Co., fertilizer manufacturers, own about 250 feet, improved with one large 2-story frame building 90 feet square, with steam crane and necessary freight-handling devices for loading and unloading of vessels; also two 1-story frame sheds, one 100 feet long, the other about 80 feet in length, each about 30 feet wide.

The canning factory has about 150 feet of water front, owned by W. A. Morris, and improved with a brick 2-story building 100 by 60 feet.

The flour mill, owned by Fooks & Co., has about 400 feet of water front, improved with a large mill with modern equipment.

L. E. Williams & Co., lumber dealers, have about 950 feet of water front, all solid bulkhead, improved with planing mill, sash factory, etc.

Gillis & Co. have about 300 feet of bulkhead water front, improved with a large brick store and other large brick warehouses.

At the lower end of the city there is about 560 feet of bulkhead water front. The Salisbury Marine Construction & Shipbuilding Co. occupies about 300 feet, which is improved with all necessary appliances and buildings for an up-to-date boat-building yard. W. K. Leatherbury owns the remaining 260 feet, and is engaged in the oyster-packing business.

It is fair to state that at least 2,000 feet of this bulkhead water front is open to all water carriers at very reasonable terms.

All of the above-mentioned water front is below the drawbridge at Main Street, Salisbury.

Just above the drawbridge at Main Street there is about 925 feet of improved solid bulkhead water front on the east side of the river, about 500 feet of which is owned by the Baltimore, Chesapeake & Atlantic Railway Co., and improved with one brick building 130 by 60 feet, two stories, and one frame building 90 by 40 feet wide, one story.

G. F. Mitchell owns and occupies 125 feet of this water front, which is improved with a frame warehouse, one and one-half stories, 40 by 30 feet, and three sheds, all of which are used in the coal and mill-feed business.

The remaining 300 feet is owned by F. A. Grier & Son, and improved with a 2-story frame warehouse 100 by 30 feet, and occupied by the owners as a machine shop and for the storage of machinery supplies.

There is also above the drawbridge, on the west side, about 750 feet of solid bulkhead water front. About 300 feet of this front is owned and occupied by the Salisbury Wood Working Co., and improved with one large 1½-story frame warehouse 100 feet square and an annex 50 feet square, only one story, and two frame sheds, one 150 feet long, about 25 feet wide, and the other about 100 by 30 feet.

The remaining 400 feet of wharf property is owned and occupied by E. S. Adkins as a lumber yard. It is improved with one large shed 150 by 50 feet.

The south fork of this river, extending for a distance of 2,450 feet into the easterly part of Salisbury, was bulkheaded along both sides and dredged at private expense by the Salisbury Realty Co., and it is understood that the whole length is open to use for wharves to all on equal terms.

The elevation of all of the above-described wharves is at about 5 feet above mean low water.

(*b*) Most of the wharves above Main Street, Salisbury, have physical connection with railroads.

(*c*) Fairly good roadways are or will be provided for this section of wharfing. All of the water front below the drawbridge at Main Street, Salisbury, mentioned above, has approaches partly over the well-paved streets of Salisbury and over good oyster-shell roads.

(*d*) There has been very little traffic above the bridge. Owing to its shoal condition, only very light-draft vessels would venture above. This section of the river is now being improved by the General Government. After it is completed a large additional area of waterfront property will be opened up. The owners of this property contemplate immediate improvement to the same, it being very much needed to relieve the present congested conditions below the drawbridge.

POCOMOKE RIVER, MD.

(*a*) The improved portion of this river is at the upper end, and extends from Shabroon Point to the county bridge at Snow Hill, Md., a distance of 3¼ miles.

The only wharf on the improved portion is at Snow Hill, where there is a solid bulkhead water front extending from the county bridge at foot of Washington Street down for 865 feet. Smith, Moore & Hargis own 250 feet at the lower end, which is improved its entire length with an open frame shed about 20 feet wide, and open to all water carriers at reasonable rates.

The Baltimore, Chesapeake & Atlantic Railway owns and occupies 165 feet exclusively as a steamboat wharf, which is improved with a frame shed its entire length about 20 feet wide, with a close freight house at the lower end and an office at the upper end. It is not open to public carriers.

The remaining 450 feet is owned by several townspeople and improved with several one-story, small frame buildings, used for storage purposes, and is open to water carriers at reasonable rates.

The general elevation of the wharves is about 5½ feet above mean low water. They have no freight-handling devices.

(*b*) A spur of the Delaware, Maryland & Virginia Railway passes in front of all of the above-described wharf front not more than 4[illegible] feet distant from the bulkhead.

(*c*) The wharves are accessible from the city streets.

(*d*) The present wharves appear to be sufficient to accommodate the traffic.

LA TRAPPE RIVER, MD.

(*a*) La Trappe River is an arm of the Choptank River and about 3 miles long, its terminus being Trappe Landing, which is improved

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

with 425 feet of wharf front, 225 feet of which is solid bulkhead; the remaining 200 feet is an open-pile structure about 40 feet wide, partly covered with a one-story frame warehouse 100 feet long and about 25 feet wide. This property is owned by private parties. The pile portion, or 200 feet of it, is rented to the Baltimore, Chesapeake & Atlantic Railway Co. The bulkhead portion, which is improved with two small office buildings, is used as a coal and lumber yard and open to public carriers; amount of wharfage charged is not obtainable. There are no freight-handling devices. The elevation of the wharf is about 5 feet above mean low water.

(*b*) No railroad connections exist.

(*c*) It is approached by a fine oyster-shell road.

(*d*) No additional wharves are apparently needed at present.

MANOKIN RIVER, MD.

(*a*) The improvement of this river extends from Locust Point to Sharps Point, a distance of about 3 miles, which is about 7 miles below Princess Anne, Md.

Locust Point Wharf is the first wharf above the lower end of the improvement and is 220 feet long, 20 feet wide, with a pier at its outer end 25 feet long and 40 feet wide, owned by the county, and improved with a frame warehouse 30 by 20 feet. It has no special freight-handling devices, is about 5½ feet above mean low water, and open to all water carriers on equal terms.

The next wharf, about 3 miles above, is owned by Mr. Milligan. It is an open-pile structure, about 100 feet long, 25 feet wide, with a small pier at the outer end, and improved with a small frame, one-story freight house. It is about 5 feet above mean low water, with no special freight-handling devices, and open to water carriers on equal terms.

There are no other terminals on this stream until that of H. P. Dashiell's is reached, at the lower end of the town of Princess Anne. He has a solid bulkhead wharf about 50 feet long and about 80 feet wide. It is about 4 feet above mean low water, improved with a small frame house, and has no special freight-handling devices. It is open to water carriers on equal terms.

A few hundred feet farther up, Mr. Frank H. Dashiell owns a solid bulkhead wharf, extending out about 20 feet, and 80 feet long, improved with a one-story frame warehouse 50 by 30 feet, and used for storage purposes. This wharf is about 4 feet above mean low water and has no special freight-handling devices. It is open to all water carriers on equal terms.

(*b*) None of the above-mentioned wharf property has railroad connection.

(*c*) All of the wharves are approached over good county roads.

(*d*) The present water terminals appear to be sufficient for present needs.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

TYASKIN CREEK, MD.

(*a*) There is one wharf on this improvement known as Tyaskin Wharf, situated on Tyaskin Creek, an arm of the Nanticoke River, Md., at the village of Tyaskin. This wharf is an open-pile structure about 100 feet long by 50 feet wide, improved with a frame warehouse 25 by 15 feet, and leased to the Baltimore, Chesapeake & Atlantic Railway Co. on a percentage of freight handled. The wharf is open to all. No freight-handling devices exist. The elevation of the wharf is about 5 feet above mean low water.

(*b*) There is no railroad within 20 miles.

(*c*) The wharf is approached by a good oyster-shell road, which passes through the center of Tyaskin village.

(*d*) No more wharves are considered necessary at present.

CORSICA RIVER, MD.

(*a*) There are no wharves now in use on this river except at Centerville Landing. At this place there is about 1,000 feet of solid bulkhead wharf front, owned by various private citizens, improved with six frame buildings of one and two story, which are used for business purposes. The wharves are about 5 feet above mean low water and open to all water carriers on equal terms. They have no special freight-handling devices.

(*b*) The nearest railroad to this terminal is about 1 mile distant.

(*c*) The approach is over a good oyster-shell road.

(*d*) The terminal here is considered sufficient for present needs.

TUCKAHOE RIVER, MD.

(*a*) Waymans Wharf, at the beginning of the improvement which is to be made in the Tuckahoe River, is a solid-filled bulkhead 15 feet wide extending 100 feet into the river, at the end of which there is a bulkheaded landing about 50 feet wide extending 25 feet farther into the river. There is a small frame freight storehouse on this pier, which is used as a landing for the boats of the Baltimore, Chesapeake & Atlantic Railway Co.

At Hillsboro, 3 miles above, there is a solid-filled bulkhead, 125 feet long, which is understood not to be open to all on equal terms.

There are no freight-handling devices. The elevation of these wharves is about 6 feet above mean low water.

(*b*) There is no physical railroad connection with any of these wharves.

(*c*) These wharves are reached by county roads.

(*d*) It is understood that when the improvement will have been made a public wharf will be built at Rolphs Landing, about 1 mile above Waymans Wharf, and at the head of the project.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

TILGHMAN ISLAND HARBOR, MD.

(*a*) The project for Tilghman Island Harbor is for an anchorage basin. There are four wharves at that place; three of them consist of bulkheads filled in with oyster shells and are of the following dimensions: 250 feet by 200 feet, 125 feet by 200 feet, and 150 feet by 150 feet. These wharves are all about 600 feet from the shore. The first two are reached by a roadway of shells that have been filled in; the third is reached from the shore by a wooden walk 3 feet wide, built on light piles. Each of these wharves is occupied by packing houses and they are owned and used exclusively. The fourth is an open-pile structure 1,150 feet long by 20 feet wide, at the end of which there is a landing, trapezoidal in shape, being 60 feet at the outer end, 120 feet at the inner end, with a width of 90 feet and an elevation of about 9 feet above mean low water. On this landing there are two frame sheds used for freight storage. There are no freight-handling devices. The wharf is owned and used exclusively by the Baltimore, Chesapeake & Atlantic Railway Co. as a landing for its boats.

(*b*) There is no railroad in the vicinity.

(*c*) The land approaches to these wharves are over good oyster-shell roads.

(*d*) There is at present no need of additional wharf facility.

TRED AVON RIVER, MD.

(*a*) At Easton Point, the landing for Easton, Md., there is a wharf consisting of a solid bulkhead filled with earth and cinders. This bulkhead extends for a distance of about 600 feet in a northerly direction and about 300 feet easterly. It is at the junction of the north and east prongs of the river and has a variable elevation of from 2 to 5 feet above mean low water. The whole water front is owned and controlled by private parties, and a part of it is used by the Baltimore, Chesapeake & Atlantic Railway as a landing for its steamers under terms that could not be learned. The other part is understood not to be open to all on equal terms. There are no freight-handling devices.

(*b*) There is no railroad connection with this wharf.

(*c*) It is reached by a good macadam roadway from Easton, 1 mile away.

(*d*) Additional wharf room is necessary to admit of competition in transportation facilities; such wharf should be either to the north or east of the present one, on the same side of the river or opposite on the northwesterly shore.

SLAUGHTER CREEK, MD.

(*a*) This stream is about 2½ miles long; Taylor Island is at the head of navigation and its only terminal. At this place there is a solid bulkhead wharf about 300 feet long and about 4 feet above

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

mean low water. It is owned by the citizens of the village, and is improved with two frame buildings, which are used for general freight and storage business. There are no special freight-handling devices, and the wharf property is open to all water carriers on equal terms.

(*b*) There are no railroads within 18 miles of this place.

(*c*) The approaches are over good, firm county roads.

(*d*) The present water terminals appear to be sufficient for present needs.

NANTICOKE RIVER, DEL. AND MD.

(*a*) Following is a description of existing wharves:

Houston, Perry & Co., a solid bulkhead wharf, 280 feet long, situated about seven-eighths mile below the town of Seaford, in front of their planing mill, which is used exclusively by that company for their lumber business.

Ross's Wharf, about one-half mile below the town of Seaford, an open pile structure, about 50 feet square, owned by D. S. Ross, and open to water carriers at reasonable wharfage rates.

Seaford, Del., the head of navigation. At this place there is about 2,100 feet of solid bulkhead water front, about 950 feet of which is owned by the Delaware Division of the Philadelphia, Baltimore & Washington Railroad and used exclusively by the steamers of the Baltimore, Chesapeake and Atlantic Railroad Co.; the remaining portion is owned by citizens of the town, and open to water carriers at reasonable rates of wharfage. The Delaware Division of the Philadelphia, Baltimore & Washington Railroad passes through the town, but as far as can be learned there is no interchange of freight by water.

The Seaford Marine Railway Co. have built a modern shipyard just below Ross's Wharf. It is said to be doing a good business. They have built several fine bay schooners and barges. This enterprise is only a few years old, and the projectors are much pleased with their investment.

There are no freight-handling devices at any of the above wharves. The elevation of all the wharves is about 5 feet above mean low water.

(*b*) The wharves of Houston, Perry & Co. and Ross have physical connection with the Cambridge & Seaford Railroad.

(c) Good oyster-shell roads connect with all the wharves.

(*d*) No additional wharves are apparently needed at present.

NORTHWEST FORK NANTICOKE RIVER (MARSHYHOPE CREEK) DEL. AND MD.

(*a*) There are three wharves on the improved portion of this stream:

Upper Brown's wharf, at the beginning of the improvement, and about 4 miles below the turning basin at the upper end is a log pen

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways
(*d*) Necessity for water terminals.

wharf 75 by 40 feet filled in with oyster shells and earth with no building, and about 1½ miles from Williamsburg, a station on the Cambridge branch of the Delaware division of Philadelphia, Baltimore & Washington Railroad.

Wroten's landing wharf, about 2½ miles above, constructed of log pens, filled in, is 75 feet by 20 feet, with no improvements on it.

Gray's Landing wharf, about one-half mile farther up, is of about the same construction, with no buildings, and about 50 by 30 feet.

In the turning basin at the upper end of the improvement there has been a new log frame wharf built and filled in, 50 by 20 feet, with no other improvements. This wharf is about one-half mile from the town of Federalsburg and approached over a good county road.

There is also about 800 feet of bulkhead wharf front above the railroad bridge at Federalsburg inside of the town limits improved with various small warehouses. The above-mentioned wharf property is open to all water carriers on equal terms. There are no freight-handling devices. All are at an elevation of about 5 feet above mean low water.

(*b*) No physical railroad connection exists.

(*c*) Fairly good highways connect with the wharves.

(*d*) The existing wharves are apparently sufficient to accommodate present traffic.

BROAD CREEK RIVER, DEL.

(*a*) At Portsville, there is a bulkhead wharf 150 feet long, 30 feet wide, improved with a frame warehouse 40 by 20 feet. There are no freight-handling devices, and it is open to all water carriers at moderate charges.

At Bethel there is a county wharf of solid bulkhead structure, 50 feet long and 20 feet wide, improved with a warehouse 20 feet square. There is no railroad within 3 miles. It is open to public carriers free of wharfage.

At Laurel, the head of navigation, there is 800 feet of solid bulkhead wharf below the railroad bridge, owned and used by the Marvil Package Co. as a lumber yard, and improved with two buildings, one an open frame shed 100 feet by 25 feet, and a 1½-story frame warehouse 30 feet long and 20 feet wide. The Delaware division of the Philadelphia, Baltimore & Washington Railroad passes through the town, and there is a depot not over half a mile from any of the wharf property.

A permit has been issued for a new wharf, to be built at Bethel by the town commissioners.

Above the railroad bridge, Samuel Bacon, Sons & Co. own about 600 feet of solid bulkhead wharf on the north side of the stream, improved with an open frame shed 200 by 100 feet; a box factory 200 by 100 feet; and two other frame buildings, one 120 feet by 50 feet, the other 60 by 40 feet, which are fitted up and used as an electric plant. This property is occupied by the owners as a first-class lumber and building supply yard, and not open to public carriers.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

On the south side of the stream, above the railroad bridge, there is also about 1,000 feet of bulkhead wharf front, owned by citizens of the town, and improved with frame warehouses for transportation purposes. This wharf property is open to all water carriers on equal terms.

There are no freight-handling devices at any of the wharves. The elevation of all above mean low water is about 5 feet.

(*b*) The wharf of Samuel Bacon Sons & Co., at Laurel, has physical connection with the Delaware division of the Philadelphia, Baltimore & Washington Railroad. No prorating agreements as to interchange of traffic are known to exist.

(*c*) Good shell and earth highways connect with all the above-mentioned wharves.

(*d*) The wharves are apparently adequate to accommodate the present traffic of the river.

TWITCH COVE AND BIG THOROUGHFARE RIVER, MD., CONNECTING TYLERS RIVER WITH TANGIER SOUND.

(*a*) The only wharves benefited by this project are at Ewell and Tylerton, and consist of light pile structures about 50 feet long and 10 feet wide, standing 4 feet above mean low water. That at Ewell is owned by A. B. Bradshaw & Son, and that at Tylerton by Mr. Edward P. Tyler. These wharves are at the general stores located at these places on Smith Island, and are open to the free use of all. The only vessels capable of reaching them are gasoline launches and small sailboats. No special freight-handling devices exist.

(*b*) There are no railroad connections.

(*c*) There are no roads on Smith Island, all travel from place to place being via water.

(*d*) Apparently the existing wharves are all that are necessary at present.

CRISFIELD HARBOR, MD.

(*a*) At this place the New York, Philadelphia & Norfolk Railroad have a wharf about 400 feet long and 75 feet wide, built on piling and filled in with oyster shells. It is improved with a large one-story frame warehouse, 200 feet long and 65 feet wide, at the outer end, with its railroad tracks extending through the building on the west side. This property is leased to the Baltimore, Chesapeake & Atlantic Railroad Co. at $1,800 annually, and used as a general freight and transfer station. There are no special freight-handling devices.

There is also about 660 feet of solid bulkhead water front on the northerly side of the railroad wharf, and 230 feet of similar water front on the southerly side.

In addition to the above-mentioned bulkhead wharf property, there is on the southerly side of the harbor about 540 feet of the same kind of wharf property.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

The total amount of bulkhead wharf front is 1,430 feet, all of which is improved principally with two-story brick buildings, which are owned and occupied by various citizens of Crisfield, who use them for business purposes. The wharf front is open to public carriers at reasonable rates for wharfage. The railroad wharf is used exclusively for the business of the lessor, and not open to public carriers. The elevation of the wharves above mean low water is about 5 feet.

(*b*) The first-described wharf has both physical railroad connection and prorating agreement with the railroad company.

(*c*) The wharves are reached by the city streets.

(*d*) They are apparently adequate to accommodate the present traffic.

LOWER THOROUGHFARE, DEAL ISLAND, MD.

There are no terminal or transfer facilities at this locality, which is a land-locked harbor, used only as a harbor of refuge. No terminal facilities are necessary.

BROAD CREEK, MD.

(*a*) This is a cut-off channel, on which there are no terminal facilities.

(*b*) There are no railroads in the vicinity.

(*c*) There are no highways in the vicinity.

(*d*) No wharves are necessary.

REPORT OF LIEUT. COL. W. C. LANGFITT, CORPS OF ENGINEERS, OF THE WASHINGTON, D. C., DISTRICT.

[The letters (*a*), (*b*), (*c*), and (*d*) indicate subheadings as shown by footnotes.]

(*a*) The Washington, D. C., district embraces the following rivers, harbors, or other bodies of water which are now or have heretofore been under improvement by the General Government:

1. Potomac River at Washington, D. C.
2. Anacostia River, D. C.
3. Potomac River at Alexandria, Va.
4. Potomac River at Lower Cedar Point, Md.
5. Upper Machodoc Creek, Va.
6. Nomini Creek, Va.
7. Dymers Creek, Va.
8. York River, Va.
9. Mattaponi River, Va.
10. Pamunkey River, Va.
11. Occoquan Creek, Va.
12. Rappahannock River, Va.
13. Urbana Creek, Va.
14. Harbor at Milford Haven, Va.
15. Aquia Creek, Va.
16. Lower Machodoc Creek, Va.
17. Breton Bay, Md.
18. Carters Creek, Va.
19. Potomac River below Washington, D. C.
20. Patuxent River, Md.
21. Potomac River at Mount Vernon, Va.
22. Nandua Creek, Va.

The ports of this district may be classified as city ports and country landings. The cities of Washington, D. C., Alexandria, Va., and Fredericksburg, Va., are the only representatives of the first class.

Washington, West Point, and Fredericksburg are the principal terminals as distinguished from way points. West Point is the only port in the district which may be classified as a commercial port. All the rest are industrial ports. Washington is the principal port. It has a developed water front on waters improved by the United States of about 2 miles, and a front undeveloped for commerce of about 16 miles. The latter includes that frontage set apart for parks and purposes of the United States, about 8 miles. The wharves of Georgetown water front consist of bulkhead landings or narrow pile wharves extended a little beyond the bulkhead lines. On this section of the front all vessels berth parallel to the bulkhead line. These bulkheads are of timber, stone, and concrete. On the Washington channel the pier and slip system is used, and vessels berth either parallel or perpendicular to the bulkhead lines. Here we find pile wharves generally poor in condition and very much in need of re-

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

pairs. The buildings along the Washington water front are frame structures almost entirely, and are not creditable. A detailed report of the conditions in the Washington Harbor is contained in Senate Document No. 519, Sixtieth Congress, first session, May 23, 1908, together with recommendations for the betterment of these conditions. Conspicuous as exceptions to the generally out-of-date and ill-appearing structures along the Washington water front are the coal, gravel, and sand bulkhead landings of the Consolidated Coal Co. and L. E. Smoot, the sand and gravel yard of the District of Columbia, and the wharves of the District Naval Militia and the United States Lighthouse Establishment. Outside of Washington by far the greater number of wharves are wooden structures supported upon piles. As a rule these are very lightly built and not kept in repair. There are generally one or two small warehouses for the storage of freight, and very often an industrial track is run along the pier for the transportation of freight on a flat car between the pierhead and the shore. Many landings for wood, lumber, and ties consist merely of rough cribs or piles of logs and heavy timbers upon which the freight is piled, forming its own platform.

The following is a list of commercial companies operating regular steamboat lines in the district, together with the number of steamers which each operates:

Norfolk & Washington Steamboat Co., 3.
Maryland, Delaware & Virginia Railway Co., 6.
Potomac & Chesapeake Steamboat Co., 3.
Colonial Beach Co., 2.
Mount Vernon & Marshall Hall Steamboat Co., 2.
Chesapeake Steamship Co., 3.
Norfolk, York River & Tidewater Steamboat Co., 1.
Independent Steamboat & Barge Co., 1.
Virginia Steam Navigation Co., 1.
Baltimore, Chesapeake & Atlantic Railway Co., 3.

In addition to the above, there is considerable steamboat traffic on United States Government vessels between the navy yard and the naval powder factory and proving ground at Indian Head, Md.; between Washington and Fort Washington, Md.; and between Washington Barracks and Fort Foote, Va. There are, in addition, a very large number of vessels, barges, scows, and tugs in the district.

By far the greatest amount of loading and unloading is done by hand. Bulk materials, sand, gravel, and coal are handled largely with derricks, either on shore or on derrick boats, and with steam cranes in Washington. All steamboat freight is loaded and unloaded with hand trucks. This is the natural method, as all river steamboats have their freight storage space on one deck, and are built so that the freight deck is near to the level of an ordinary wharf. In the lower or southern section of the district the greater number of wharves have small jib cranes or oyster derricks, by which oysters, crabs, and fish are hoisted. Ties and wood are largely handled on large skeleton wheelbarrows. There are no electric or hydraulic cranes in the district. Five traveling steam cranes are used on the wharf of the United States naval powder factory and proving ground at Indian Head, Md.

The two wharves of Littlefield & Alvord, foot of Thirtieth Street NW., and foot of C Street NW., and the three wharves of W. W. Riley between Eleventh and Twelfth and Water Streets are the principal wharves in Washington that are open to all water carriers on equal terms. The five principal wharves on the York River are open wharves, and almost all of the nonsteamboat wharves over the district, with the exception of those connected directly with a factory or other enterprise requiring water transportation, are open to anyone who will pay the wharfage rates. Wharfage rates vary considerably. As a rule the rate on steamboat freight is 10 per cent of the transportation charge, but this is not always so. The wharfage rate in many cases is "per package," and in many others the rate is based upon weight. The rates for a thousand feet of lumber and for a cord of wood vary from 4 to 40 cents, but the latter rate also includes handling, while the former does not. At Riley's Wharf in Washington the wharfage rate for oyster boats becomes a dockage rate, as they are charged per boat for the length of time they lay at the wharf. If they are required to berth outside of two other vessels, the rate is only half of what it is if they can secure a berth next to the wharf.

The following are a few specimens of rates charged:

Passengers, 0 to 20 cents each.
Yeast, 5 cents per box.
Horses, 50 cents each.
Berries, 2 cents per bucket.
Packages, 3 to 5 cents each.
Fertilizer, 50 cents per ton.
Feed, 50 cents per ton.
Bulk freight, 50 cents per ton.
Fish, 20 cents per hundred.
Potatoes, 2 cents per barrel.
Laths, 5 cents per thousand.
Lumber, 5, 10, 15, and 40 cents per thousand feet.
Stone, 5 cents per ton.
Coal, 5 cents per ton.
Wood, 5, 8, 10, and 15 cents per cord.
Ties, one-half, three-fourths, and 1 cent each.
Grain, one-fourth cent per bushel.

(*b*) Physical connection between water terminals and railroads is the exception, rather than the rule, in the Washington district. The Southern Railway-Chesapeake Steamship terminal at West Point, Va., is practically the only place where such connection is utilized to any great extent.

At their sand wharf, Thirty-first and K Streets NW., Washington, D. C., the Columbia Granite & Dredging Co. have a short inclined railway, by which sand in small dump cars is run from scows on the river to a platform above the railroad track of the Baltimore & Ohio Railroad Co., which runs down K Street, and is there dumped into the railroad flat cars below. The Baltimore & Ohio Railroad Co. runs about 130 feet of water front at the foot of Thirtieth Street NW., and has a spur track which ends within a few feet of the water's edge, but there is no actual rail and water connection at present.

(*b*) Physical connection between water terminals and railroads.

Also at the foot of Thirtieth Street NW., on the coal and sand and gravel yard of the Consolidated Coal Co., and of L. E. Smoot, there is a double track railroad running along the bulkhead, which is connected to the Baltimore & Ohio Railroad as a spur, but it is understood that no use is made of this connection. The Pennsylvania Railroad has a switch in the United States navy yard on the Anacostia River, and this spur receives considerable use in the transfer of ordnance and other materials between the navy yard and the powder factory and proving ground at Indian Head, Md.

The wharves of W. A. Smoot and Agnew's shipyard, in Alexandria, Va., have physical connection with the Southern Railway and use is made of these connections for the interchange of considerable traffic.

The wharf of the Washington Steel & Ordnance Co., at Giesboro Point, in the District of Columbia, has direct connection with the Baltimore & Ohio Railroad through the grounds of the steel and ordnance company, but this connection is not utilized for the interchange of traffic between land and water carriers.

The United States proving ground and powder magazine has [illegible] miles of standard-gauge railroad, upon which are operated one steam and four electric locomotives. This railroad has direct connection with the Government wharf at this point by three spur tracks. Ordinary box cars containing powder ingredients are brought on heavy Navy barges provided with tracks from the Pennsylvania Railroad in Washington, and are hauled over this wharf direct to the powder factory.

Mutual contracts for the interchange of traffic exist between the following water and land carriers:

At Washington, D. C.: Potomac & Chesapeake Steamboat Co., with the Pennsylvania and Baltimore & Ohio Railroads; Norfolk & Washington Steamboat Co. with the Baltimore & Ohio Railroad, Chesapeake & Ohio Railway, Pennsylvania Railroad, Southern Railway, Washington Southern Railway, and Potomac & Chesapeake Steamship Co.

At Fredericksburg, Va.: Maryland, Delaware & Virginia Railway Co., with the Richmond, Fredericksburg & Potomac Railroad.

At West Point, Va.: Norfolk, York River & Tidewater Steamboat Co. with the Virginia Steam Navigation Co.; Virginia Steam Navigation Co. and Chesapeake Steamship Co. with the Southern Railway Co.

(*c*) In Washington and Alexandria paved city streets lead to most of the water terminals. Macadam roadways lead to wharves at Fort Hunt, Va., Fort Washington, Md., and Mount Vernon, Va. In almost every other case the roads or streets are not improved, and in the most cases they should be classed as very poor dirt roads. Marginal streets or roads exist at the following ports:

Washington, D. C., Occoquan, Va., Solomons Island, Md., Alexandria, Va., Fredericksburg, Va., Colonial Beach, Va., Shepherds, Va.

(*d*) Large quantities of wood, ties, and lumber in the Washington district are loaded from shores in lighters or rafts at points where no terminals exist, however, as it is understood that the quantities of the above articles shipped are gradually growing less, and as the loading from shore in some cases is adopted by choice where a [illegible]

(*c*) Connection with highways.
(*d*) Necessity for water terminals.

wharf is available and convenient, it is not believed that terminals should be built to accommodate this traffic. There is no wharf at coal landing on Aquia Creek, Va., and it is believed that the traffic at that point requires one. This should be a bulkhead landing, at the site of the present shore landing, and should be at least 200 feet long.

There should be a large landing and yard constructed near to and below the wagon bridge at Walkerton, Va., as a transfer and temporary storage station for the large amount of wood, ties, and lumber which is lightered to this vicinity from points above on the Mattaponi River and here loaded on barges and vessels. A great many wharves should be built all over the district, but these should be to replace those already existing, but in bad condition, rather than at points where no terminals exist at present. As a matter of fact, the district needs fewer but better terminals, but little can be hoped to be accomplished along these lines until the roads are improved so as to make the terminals accessible.

(*e*) The amount of water front in the Washington district owned directly by railroad companies is comparatively small. The Southern Railway owns about a mile of front on the Pamunkey River at West Point, Va., and one town block, 200 feet, on the Mattaponi River, in the same town. The Baltimore & Ohio Railroad Co. owns about 130 feet at the foot of Thirtieth Street NW., Washington, D. C. The Southern Railway Co. owns about 1,250 feet at Alexandria, Va. The Potomac, Fredericksburg and Piedmont Railroad Co. owns about 200 feet of undeveloped water front at Fredericksburg, Va. The Pennsylvania Railroad Co. owns the width of its right of way at Popes Creek, Md.

The United States certainly owns about 54,475 linear feet of water front in the District of Columbia, and judicial determination of title is at present under way, which will probably establish its claim to a great deal more. The Government also owns the water fronts of the following reservations on or near the Potomac River below Washington, D. C.:

Fort Foote, Md.
Fort Washington, Md.
Fort Hunt, Va.
Fish hatchery at Bryans Point, Md.
Battery Point, at Alexandria, Va.
Reservation of the United States Lighthouse Establishment.
Naval proving ground and powder factory, Indian Head, Md.
Marine rifle range, at Stump Neck, Va.
District of Columbia workhouse, near Occoquan, Va.

Municipal ownership in cities and towns is largely confined to the ends of streets.

County landings are quite common in Virginia and Maryland. They generally consist of 1 square acre of ground. Frequently the wharves or landings are of the poorest sort, and occasionally there are no structures whatever, and vessels are forced to load from shore. As a rule these landings are free; there is no person in charge, and the only repairs that the wharf gets is that given by individual ship-

(*e*) Ownership of water front.

pers to make it barely possible to get their goods on or off board the vessels. In some cases steamboat companies have erected wharves at these county landings.

The county wharf at Gloucester Point, Va., is a marked exception to the general rule. This is a substantial structure with mechanical devices for handling oysters and crabs, and with ample storage and waiting-room accommodations. An agent is employed to operate the wharf, and regular rates of wharfage are charged. The gross revenue from this wharf will average about $2,500 per year.

The extent of control of terminals exercised by the steamboat companies varies. In some cases they own the terminals outright, in others they hold the terminals upon lease, in others they own the artificial structures upon publicly or privately owned water front, but in most common cases the steamboat companies land on a strict wharfage basis. In this latter case the wharfage rate is generally, but not always, 10 per cent of the transportation charge. At wharves where both steamboats and freight vessels land, the steamboats are given the right of way.

In the cities and towns transfer and delivery is made by those regularly in the express or drayage business. At Washington some of the freight under special conditions is delivered or transferred by delivery firms under contract with the steamboat companies. The transfer of freight between the Richmond, Fredericksburg & Potomac Railroad Co. and the steamboats of the Maryland, Delaware & Virginia Railway Co. is done under contract with a local expressman. In many cases in cities and towns and in almost all cases outside of them transfer and delivery is done by the patrons (shippers or consignees) themselves with their own teams. In almost all communities there are small farmers who, with their teams, are hired for hauling at times when farm work is slack. In the Washington district the facilities for land transfer and delivery of water-borne freight seem to be ample and at no point is there serious congestion of this traffic.

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1. POTOMAC RIVER AT WASHINGTON, D. C.

(*a*) Washington is located in the District of Columbia on the left bank of the Potomac River. It is the head of navigation of the Potomac, and is about 110 miles above its mouth.

There is about 11,600 feet of water front along the Virginia and Washington channels which may be considered as developed for commerce. The wharves of the Georgetown channel are, for the most part, bulkhead landings. Such wooden-pile wharves as do exist are narrow structures extending but little beyond the bulkheads. In this section all vessels berth parallel to the bulkhead.

In the Washington channel the pier-and-slip system is used and vessels berth both at the ends and sides of the piers.

As a rule, the wharves and accompanying buildings along the Washington water front are not in good condition and do not present a creditable appearance.

(*a*) General location and description.

Much of the frontage stated above as developed is used for storage in connection with near-by wharves.

In 1906 Congress provided $2,500 for surveys, plans, and estimates for improving the harbor front.

A harbor board was formed and the following extracts are taken from the report of that board, made in 1908. Conditions are at least no better at the present time:

> Practically all of the existing bulkhead walls, wharves, and buildings used for commercial purposes along our entire river front have been built by private individuals or corporations without any general plans and with but little general supervision, and as a result we probably have the most unsightly river front of any capital city in the world.

Such criticisms as the above do not apply to the following wharves, which are well constructed, attractive, and efficient:

Smoot's Wharf (Georgetown front).
District of Columbia Sand & Gravel Yard.
District of Columbia Naval Militia Wharf.
United States Lighthouse Wharf.

There are in all 44 regular wharves or landings on the Washington front of the Potomac.

These wharves receive about 9,286 dockages per year. About 751,500 passengers per year arrive and depart.

The outgoing freight consists principally of coal, cement, lumber, sand, and gravel, and will amount to about 343,982 tons per year.

The incoming freight consists largely of coal, lumber, sand, and gravel, and will amount to about 333,164 tons per year.

The following regular steamboat lines arrive and depart from the Potomac River wharves of Washington:

Norfolk & Washington Steamboat Co.
Maryland, Delaware & Virginia Railway Co.
Potomac & Chesapeake Steamboat Co.
Colonial Beach Co.
Mount Vernon & Marshall Hall Steamboat Co.
Independent Steamboat & Barge Co.

In addition to the boats operated by the above companies there is considerable traffic with Government steam vessels arriving at and departing from the Engineer Wharf, the Quartermaster's (Forsberg's) Wharf, the Lighthouse Wharf, the District Sand and Gravel Yard, and the Washington Barracks Wharf.

At Washington much freight is loaded and unloaded by hand. The steamboat freight is handled with hand trucks over gangplanks.

Floating derricks are commonly used for loading coal, sand, gravel, stone, etc., and there are 12 wharves which are equipped with mechanical handling devices. These often consist of stationary derricks, with elevated hoppers and elevated industrial railways leading to various parts of the storage yards. There are steam traveling cranes, one each, at the following wharves:

Capital Traction Co.
Smoot's Georgetown Wharf.
J. Maury Dove Co.'s Georgetown Wharf.
District of Columbia Sand and Gravel Yard.

The elevated industrial railway at the plant of the Washington Gas Light Co. is worthy of note, on account of its long haul and of the fact that its trains are operated by electricity.

The average rate of loading or unloading for the mechanical devices is about 53 tons per hour.

Six of the wharves on the Potomac River are open to use by all water carriers on equal terms. Wharfage rates charged for the most common articles of freight handled are as follows:

Stone, 10 cents per ton.
Coal, 5 cents per ton.
Wood, 15 cents per cord.
Lumber, 15 cents per 1,000 feet.
Brick, 15 cents per 1,000.
Melons, 20 cents per 100.
Fish, 20 cents per 100.
Canned goods, one-fourth cent per case.

At the Oyster Wharf at the foot of Eleventh Street SW. oyster boats pay a dockage charge in lieu of wharfage. The dockage rate is $1 per day per vessel for a berth alongside the wharf or for a berth if one other vessel must be crossed to reach the wharf, and 50 cents per day for dockages where two or more vessels must be crossed to reach the wharf.

(*b*) None of the wharves on the Washington Channel have physical connection with any railroad. On the Georgetown front the following wharves are physically connected with the Baltimore & Ohio Railroad:

1. Columbia Granite and Dredging Sand Wharf.
2. Capital Traction Co.
3. Smoot's Wharf.

In addition, spurs extend almost to the following wharves, and physical connection could very easily be made:

1. Water's Wharf.
2. Littlefield & Alvord's Thirtieth Street Wharf.

Of the above the physical connection is not utilized for the interchange of the traffic except at the Columbia Granite & Dredging Co.'s Sand Wharf. In this case a small inclined railway runs on a trestle from the wharf to the railroad tracks on K Street, and sand is dumped from small dump cars into the railroad cars below.

There are mutual contracts for the interchange of traffic between the following water and rail lines:

Norfolk & Washington Steamboat Co. with Chesapeake & Ohio Railroad, Pennsylvania Railroad, Southern Railroad, and Washington Southern Railroad.
Potomac & Chesapeake Steamboat Co. with Pennsylvania Railroad, Baltimore & Ohio Railroad, and Norfolk & Washington Steamboat Co.

There is very little through traffic in accordance with these agreements, as Washington is almost entirely an industrial port.

(*c*) Practically all of the Potomac wharves of Washington are accessible by paved city streets. K Street NW. forms a marginal street for the Georgetown frontage, and Water Street SW. forms a marginal street for the Washington Channel frontage.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

The Baltimore & Ohio Railroad traverses the entire length of K Street, and Water Street is well equipped with street railway lines.

Almost all of the business connected with the water front is transacted between the marginal street and the river, but Johnson & Wimsatt and W. W. Riley each control and use a large lumber storage yard on the city side of Water Street.

(*d*) It is believed that any increase in the traffic of Washington will seek wharves in the Anacostia River and, therefore, that the wharves of the Potomac front are ample in number.

Future traffic may demand larger wharves, but these can be provided by utilizing the frontage now used for storage and for pleasure. In 1908 the harbor board appointed by the District Commissioners made a report concerning the present condition and needs of the Washington water front and made recommendations for its improvement. This report was published as Senate Document No. 519, Sixtieth Congress, first session.

(*e*) From the Aqueduct Bridge around the foot of the War College the Potomac River has a frontage in the city of Washington of about 42,275 feet. Of this all, except the Georgetown front, or about 36,275 feet, is owned by the United States Government. With the exception of about 130 feet at the end of Thirtieth Street NW., which is owned by the Baltimore & Ohio Railroad Co., of street ends, and of about 500 feet belong to the Chesapeake & Ohio Canal Co., the Georgetown front, about 4,000 feet, is privately owned.

All of the Georgetown Channel frontage is controlled through ownership or lease by individuals or local corporations.

About 2,000 feet of frontage from Rock Creek to the Naval Hospital, although owned by the Government, is occupied by squatters.

From the Naval Hospital to the Engineer Wharf, about 26,200 feet, and in addition the entire shore line of the Tidal Basin, is controlled by the Chief of Engineers and used for park purposes.

The Engineer Wharf reservation, about 800 feet on the right bank of the Washington Channel at the foot of Fourteenth Street SW., is controlled by the Chief of Engineers and is used as a berthing and landing place for the floating plant of the Washington (D. C.) United States Engineer District.

From Fourteenth Street to N Street, on the left bank of the Washington Channel, about 4,600 feet is controlled by the government of the District of Columbia and by individuals or corporations holding leases from the District of Columbia.

(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

The following table taken from the Annual Report of the District Commissioners for 1912 gives a list of wharf property under lease June 30, 1912:

Potomac River front.

Name of lessee.	Location.	Expires.	Water frontage.	Area.	Rents per year
			Lineal feet.	*Square feet.*	
American Ice Co.	Sec. 2, structures 54 to 58, 60 to 67, and 78 to 88.	Mar. 15, 1913	496	102,100	$2,[illegible]
Conrad F. Bennett	Sec. 2, structures 89 to 97	do	54	7,500	[illegible]
Cranford Paving Co	Foot of Thirty-first Street NW	Feb. 1, 1918	53		[illegible]
Capital Yacht Club	Foot of Ninth Street SW., between structures 39 and 41.	June 30, 1913	24	2,080	[illegible]
Church & Wimsatt	Sec. 2, structures 34 and 35	Mar. 15, 1913	80	18,000	[illegible]
L. A. Clarke & Son	Sec. 2, structures 68 to 77, inclusive, and 70½.	May 1, 1913	280	45,800	[illegible]
Colonial Beach Co	Sec. 1, structures 31 to 37, inclusive.	Mar. 15, 1913	132	8,000	[illegible]
Dawson Boat Co	Sec. 2, structures 39 and 40	do	40	2,400	[illegible]
J. Maury Dove Co	Sec. 3, structures 12 to 20, inclusive; also foot of G Street NW.	do	168	38,000	[illegible]
Do	Foot of G Street, NW	Monthly	100		[illegible]
G. W. Forsberg	Sec. 2, structures 22 to 33, except 24, and 118, 119, 120.	Mar. 15, 1913	156	18,000	[illegible]
W. E. Garner et al	Sec. 2, structures 36, 37, and 38	Mar. 15, 1914	44	3,320	[illegible]
Ed. J. Gardiner	Sec. 3, structure 21	Oct. 1, 1912	20	1,600	[illegible]
Carl J. F Graff	Foot of Thirteen-and-a-half Street.	Mar. 15, 1913	126	11,015	[illegible]
Wm. C. Hamburg	Sec. 3, structure 23	Apr. 23, 1913	18	1,440	[illegible]
Independent Steamboat & Barge Co.	Sec. 1, structures 26 to 30	Oct. 1, 1912	120	7,000	[illegible]
Gen. John A. Johnston	Sec. 2, between structures 41 and 42.	Nov. 15, 1912	24		[illegible]
Johnson & Wimsatt	Sec. 3, structures 5 to 11, inclusive.	Mar. 15, 1913	190	43,500	[illegible]
John Miller	Sec. 3, structures 24 to 27, inclusive.	do	200	26,600	[illegible]
Mount Vernon & Marshall Hall Steamboat Co.	Sec. 1, structures 59, 62, 63, and 64	do	125	10,000	[illegible]
Norfolk & Washington Steamboat Co.	Sec. 1, structures 41 to 49, inclusive, and 57 to 69, inclusive.	do	220	20,300	[illegible]
Do	Sec. 1, structures 60, and 65 to 72, inclusive.	Dec. 31, 1916	190	44,000	[illegible]
Potomac & Chesapeake Steamboat Co.	Sec. 2, structures 11, 12, 13, 14, 15, 16, 17, 17½, 18, 19, 20, and 21.	Mar. 15, 1913	198	35,600	[illegible]
Wm. A. Ragan	Sec. 3, structure 22	do	45	2,000	[illegible]
Lewis E. Smoot	Foot of Fourteenth Street SW	May 15, 1913	233	27,960	[illegible]
Jos. P. Stephenson, trading as Stephenson Bros.	Sec. 2, structures 1 to 10, inclusive.	Jan. 31, 1917	300	59,900	[illegible]
Fish wharf, formerly leased to W. W. Riley; now in litigation.	Sec. 2, structures 98 to 129, inclusive; sec. 3, structures 1 to 4, inclusive.		496	117,800	
District of Columbia Sand Wharf.	Sec. 2, structures 41, 42, and 43 to 53, inclusive.		183	26,64[illegible]	
District of Columbia Fire Boat Wharf.	Sec. 1, structures 39 and 40				
District of Columbia Morgue	Sec. 1, structures 41 and 42				
District of Columbia Harbormaster's Wharf	Sec. 1, structure 38				
Total					17,[illegible]

[1] Also $750 in improvements. [2] Monthly lease. [3] Also $300 in improvements.

From the above table it may be seen that the following-named steamship companies control wharves on the Washington Channel by lease:

Colonial Beach Co.
Independent Steamboat & Barge Co.
Mount Vernon & Marshall Hall Steamboat Co.
Norfolk & Washington Steamboat Co.
Potomac & Chesapeake Steamboat Co.

The Maryland, Delaware & Virginia Railway Co. has landing privileges at the wharf leased to Joseph P. Stephenson.

The section between N and P Streets SW., about 1,025 feet, has been set aside by the United States for its own harbor purposes.

The Washington Barracks front, about 3,650 feet, is controlled by the War Department and is not available for commercial use.

Transfer and delivery of water-borne traffic in Washington is made with merchants' teams, contractors' teams and the regular city express trade. The broad, flat, and well-paved streets furnish unusually good facilities for drayage. Under certain shipping contracts the steamship companies are required to furnish free delivery in the city of Washington. For such traffic delivery is made by city express companies under contract with the steamboat companies.

The harbor master of the Washington Harbor is a lieutenant of police, acting under the major and superintendent of police. His duties are, in general, to prevent the obstruction or pollution of the harbor and to maintain the peace in its vicinity. He is assisted by several police officers and has a steam vessel and crew at his disposal.

The following are extracts from the Washington (D. C.) Harbor regulations:

No vessel shall be permitted to anchor in the Washington Channel of the Potomac River between a point 1,000 feet south of the south line of P Street and the north line of K Street extended, each point to be designated by a white buoy; and all vessels coming to anchor above the line of K Street south aforesaid shall come to anchor as near the flats as possible and so that the channel will not be obstructed; and all vessels coming to anchor shall be so moored by the use of both anchors as to prevent obstruction of the channel within 400 feet of the nearest wharf, the said anchorage to continue only 24 hours, unless otherwise ordered or directed by the harbor master.

The captain or owner of any sunken vessel or other structure in any dock or at the end of any wharf in the District of Columbia shall raise and remove the same in five days. Any vessel at the end of wharves or in docks shall, when required by the harbor master, haul either way to accommodate vessels going in or coming out from such wharves or docks. They shall not occupy regular steamers' or sailing packets' berths without permission from the recognized occupants of such wharves and dock, and they are required to rig in all fore-and-aft spars, have boats hoisted up under the bow, and davits turned up, as the harbor master may direct. Vessels, when not engaged in loading or discharging cargo, shall give place to such vessels as are ready to receive or deliver freights; and if the captain or person in charge of any vessel refuses to move said vessel when notified by the occupant of the wharf at which she is lying, the harbor master shall order him to haul to some other berth or into the stream. The powers and authority herein conferred upon the harbor master may, in his absence or temporary disability, be exercised by the pilot of the harbor-police boat. Any person refusing to obey the instructions of the harbor master or, in case of his absence or temporary disability, the said pilot of the harbor-police boat, or any person failing to comply with any of the provisions of this section, shall be punished by a fine not exceeding $100, or by imprisonment not exceeding six months, or both.

COLUMBIA SAND WHARF.

(*a*) The Columbia Sand Wharf is located in K Street near Thirty-fifth Street NW. It is a dilapidated wooden pile structure lying parallel to the shore, being about 120 feet long and 15 feet wide. There is a wooden sand hopper on the wharf and a cable inclined railway leading back to K Street. About 18,000 tons of sand per year is received at this wharf.

(*a*) General location and description.

Sand is placed in the hopper with floating derricks, and discharges into small cars on the inclined railway, and thence drawn backward and upward over a wooden trestle to K Street.

(*b*) The small cars are dumped directly into flat cars on the Baltimore & Ohio Railroad, which passes down K Street.

(*c*) K Street is paved.

(*e*) There is no wagon delivery from this wharf. All the sand which arrives is sent away by railroad. The sand wharf is controlled by the Columbia Granite & Dredging Co.

COLUMBIA SAND AND GRAVEL LANDING.

(*a*) The Columbia Sand and Gravel Landing is located on K Street near Thirty-fourth Street NW. This is a bulkhead landing. Material is unloaded from scows by floating derricks and deposited in the yard.

(*b*) The Baltimore & Ohio Railroad passes this yard, but there is no physical connection.

(*c*) K Street is paved.

(*e*) This landing is controlled by the Columbia Granite & Dredging Co.

COLUMBIA GRANITE & DREDGING CO.

(*a*) The Columbia Granite & Dredging Co.'s wharf is located at Water and Potomac Streets NW. It is a bulkhead landing. There is one large derrick and two stone crushers. The crusher bins have chutes projecting over the water so that vessels may be loaded directly. There is a large frame cement storehouse and an industrial track leading into it. This wharf receives about 12 dockages per year. Unloading is done with the large derrick. The crushed stone bins discharge by means of chutes directly into the vessels.

(*b*) There is no physical connection with any railroad.

(*e*) This wharf is controlled by the Columbia Granite & Dredging Co.

WATERS'S WHARF.

(*a*) Waters's Wharf is located at the foot of Wisconsin Avenue NW. It is a bulkhead landing. It receives about one dockage per year. About 75 tons of cement per year are shipped out; there are no receipts.

(*b*) A spur from the Baltimore & Ohio Railroad comes to the warehouse of Waters & Son, near the water's edge, but there is no actual connection.

(*c*) Water Street and Wisconsin Avenue are paved.

(*e*) This wharf, with about 38 feet of water front, is owned and operated by J. G. Waters & Son.

CAPITAL TRACTION WHARF.

(*a*) The Capital Traction Wharf is located at the foot of Wisconsin Avenue NW. It is a concrete bulkhead, protected by a row of

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

fender piling. A standard gauge track for a traveling steam crane passes along the bulkhead.

This wharf receives about 78 dockages per year. There are no out shipments; about 7,800 tons of coal are received per year.

The coal is unloaded by means of a traveling steam crane. Considerable difficulty in experienced in the operation of this crane on account of the narrow space in which it has to work.

(*b*) The track over which the crane acts is connected to the Baltimore & Ohio Railroad as a spur, but it is understood that no use is made of this connection.

(*c*) This wharf is accessible by city paved streets.

(*e*) This wharf, with about 250 feet of water front, is owned by the Capital Traction Co.

AMERICAN ICE WHARF.

(*a*) The American Ice Wharf is located at Thirty-first and K Streets NW. It is a wooden pile structure lying parallel to the stream, about 150 feet long and 10 feet wide. It is only used as a temporary berthing place for the vessels of the Columbia Granite & Dredging Co.

CRANFORD PAVING CO.

(*a*) Cranford Paving Co.'s wharf is located on K Street near Thirty-first Street NW. It is an old wooden pile structure. There are two boom derricks with steam hoisting engines on the upper end of the wharf and another derrick with clam-shell bucket feeding an elevated hopper on the lower end.

There are no outgoing shipments. The incoming freight is as follows:

Sand, 12,000 yards per year.
Binder, 12,000 yards per year.
Trap rock, 2,000 yards per year.
Asphalt, 2,500 tons per year.

Barrels of asphalt are unloaded at the upper end of the wharf; they are lifted from the vessel by the nearest derrick and deposited on the wharf. They are then moved by hand within reach of the second derrick, which raises them and places them within the warehouse.

Bulk materials are unloaded with the lower derrick, which raises them about 56 feet to the hopper. From the hopper the material is carried by dump cars by gravity to the proper place for dumping. The cars return by action of heavy counterweights. The cars are of the C. W. Hunt automatic overhang type and run on radial tracks. This wharf is closed to all water carriers except those engaged in the transaction of business with the Cranford Paving Co.

(*b*) There is no physical connection with any railroad.

(*c*) This wharf is accessible by paved city streets.

KING'S WHARF.

(*a*) King's Wharf is located on K Street near Jefferson Street NW. About 1,690 cords of wood per year are received at this wharf. It is

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

closed to all water carriers except those engaged in the transaction of business with William King & Son.

COLUMBIA GRANITE & DREDGING CO.

(*a*) The Columbia Granite & Dredging Co.'s wharf is located [illegible] K and Jefferson Streets NW. It is a substantial wooden pile structure about 15 feet wide. The outgoing freight is as follows:

Sand and gravel, 10,200 tons per year.
Cement, 80 tons per year.
Plaster, 43 tons per year.

The incoming freight is as follows:

Sand and gravel, 91,800 tons per year.
Cement, 720 tons per year.
Plaster, 382 tons per year.

Materials are raised from vessels to a tower with elevated tracks leading therefrom and are carried in dump cars to the proper place in the yard for dumping.

LIBBEY'S WHARF.

(*a*) Libbey's Wharf is located on K Street near Jefferson Street NW. It is a substantial wooden pile structure about 150 feet long. There are no mechancal handling devices. The freight received is as follows:

Lumber, 551,000 feet per year.
Shingles, 121,000 per year.

All loading and unloading is done by hand.

This wharf is closed to all water carriers except those engaged in the transaction of business with Mr. F. B. Libbey.

LITTLEFIELD & ALVORD.

(*a*) Littlefield & Alvord's Wharf is located at the foot of Thirtieth Street NW. It is a substantial pile structure about 85 feet long and 15 feet wide. A stiff-leg derrick stands at the end of a railroad spur near the wharf, but not near enough to reach the wharf or the river.

About 12,000 tons of coal per year is received at this wharf. Unloading is done with floating derricks. This wharf is open to use of all water carriers on equal terms. Ordinary wharfage rates are as follows:

Stone, 10 cents per ton.
Coal, 5 cents per ton.
Wood, 15 cents per cord.

Littlefield & Alvord usually give rates which include wharfage, stevedorage, and delivery.

(*b*) The Baltimore & Ohio Railroad has a spur to within a few feet of this wharf, but there is no actual connection. There is no mutual contract for the interchange of traffic.

(*c*) Thirtieth Street is paved.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*e*) This wharf, with about 130 feet of water front, is owned by the Baltimore & Ohio Railroad Co. and is rented to Littlefield & Alvord. Delivery and transfer is made by Littlefield & Alvord with their own teams.

SMOOT'S WHARF.

(*a*) Smoot's Wharf is located at the foot of Thirtieth Street NW. It is a bulkhead landing, the bulkhead being constructed of stone and concrete. A double track for a traveling steam crane passes along the bulkhead, and there is a steel hopper with chute projecting over the water for the loading of outgoing freight. About 75,000 tons of gravel and sand per year pass over this wharf.

Loading and unloading is done with steam crane, with the hopper above mentioned, and with floating derricks. It is said that the rate of handling materials has increased 65 per cent since the installation of the steam crane.

(*b*) The traveling-crane track is connected to the Baltimore & Ohio Railroad as a spur, but this connection is not utilized. There is no mutual contract for the interchange of traffic.

(*c*) Thirtieth Street is paved.

(*e*) This wharf is owned by the Chesapeake & Ohio Canal Co. and rented to Mr. L. E. Smoot and the Consolidation Coal Co.

CHESAPEAKE & OHIO CANAL.

(*a*) The Chesapeake & Ohio Canal joins the Potomac River at the mouth of Rock Creek near the foot of Twenty-eighth Street NW. The junction is made by a stone-masonry lock, the lift of which is 6 feet from mean tide.

About 4,000 vessels pass through this lock per year.

The outgoing shipments are as follows:

Coal, 200,000 tons per year.
Lumber, 1,189 tons per year.
Grain, 261 tons per year.
Stone, 15,525 tons per year.

The incoming freight is as follows:

Fertilizer, 2,867 tons per year.
Sand and gravel, 500 tons per year.
Stone, 100 tons per year.
Cement, 43 tons per year.
Lumber, 101 tons per year.

All the above freight enters or leaves the canal in canal boats belonging to the Canal Towage Co.

WASHINGTON GAS LIGHT CO.

(*a*) The Washington Gas Light Co.'s Wharf is located at the foot of Twenty-seventh Street NW., near the mouth of Rock Creek. The landing is a concrete bulkhead about 300 feet long, protected by a row of fender piling capped with 12 by 12 inch timbers. There is a

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

steel platform about 25 feet high carrying a revolving steel crane with 35-horsepower engine and a large hopper. An elevated industrial railway leads from the hopper to the coal sheds, about one and a half city blocks away.

There are no outshipments from this wharf. The incoming freight is as follows:

Coal, 33,000 tons per year.
Gas oil, 10,000 tons per year.

Coal is hoisted by means of the revolving steel crane in an ordinary clamshell bucket. It is transported to sheds over the elevated tracks in small dump cars drawn by a small electric locomotive. There is 1 locomotive and 6 cars operated in trains of 3 cars each. The average rate of handling for this plant is about 42 tons per hour.

(*b*) There is no physical connection with any railroad.

(*c*) The landing is accessible by paved city streets.

J. MAURY DOVE CO.

(*a*) J. Maury Dove Co.'s Wharf is located at the foot of Twenty-seventh Street NW. It is a wooden pile bulkhead, about 265 feet long. There are no outgoing shipments. The incoming freight consists of coal and wood. Wood is unloaded by hand and hauled away by wheelbarrows. Coal is unloaded by a McMilar steam-track crane running on a track parallel to the bulkhead. The average rate of unloading for this crane is about 30 tons per hour.

(*b*) There is no physical connection with any railroad.

(*c*) This wharf is accessible by paved city streets.

CRANFORD PAVING CO.

(*a*) The Cranford Paving Co's Wharf is located at the foot of E Street NW. There is about 500 feet of wooden-pile wharf 15 feet wide and a bulkhead, part of which is constructed of wooden timbers and the rest of stone capped with concrete. There is a 30-inch gauge industrial track leading on the ground from the bulkhead but this is not in use. There is also a traveling derrick, which is at present not used. Material is raised by a wooden-boom derrick with clamshell bucket to an elevated hopper, from which it is removed in automatic overhang dump cars running on radial tracks. The lift is about 56 feet. In addition to the above there is one other wooden-boom derrick, now out of use.

The outgoing freight consists of manure. The incoming freight consists of sand, gravel, brick, asphalt, and paving block, and will amount to about 8,037 tons per year.

Loading and unloading is done with the plant mentioned. The rate of handling is about 75 tons per hour.

(*b*) There is no physical connection with any railroad.

(*c*) This wharf is accessible by paved city streets.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

POTOMAC SAND & GRAVEL CO.

(*a*) The Potomac Sand & Gravel Co.'s Wharf is located at the foot of D Street NW. It is a substantial wooden-pile wharf, triangular in shape, being about 125 feet long and 20 feet wide at one end. There is a wooden boom derrick with a 35-horsepower hoisting engine and an elevated hopper and track over which a patent dump car runs.

Gravel and sand are received at this wharf.

Unloading is done with the derrick above mentioned. The dump cars run away from the hopper by gravity and return by the action of a large counterweight. The rate of handling at this wharf is about 80 tons per hour.

(*b*) There is no physical connection with any railroad.

(*c*) This wharf is accessible by paved city streets.

LITTLEFIELD & ALVORD'S WHARF.

(*a*) Littlefield & Alvord's Wharf is located at the foot of C Street NW. It is a wooden-pile structure in good condition, being a rectangle in shape, about 35 by 70 feet. There is a stiff-leg derrick at one corner of the wharf.

Sand and gravel are received at this wharf.

This wharf is open to use by all water carriers on equal terms.

(*b*) There is no physical connection with any railroad.

UNITED STATES ENGINEER WHARF.

(*a*) The United States Engineer Wharf is located on the right bank of the Washington Channel at the foot of Fourteenth Street SW. The wharf is a small wooden-pile structure in good condition. It is rectangular in shape, being 48 feet long and 19 feet wide. There are on the lot near the wharf a frame watchman's residence, a frame office, two frame one-story warehouses, and a new pebble-dash warehouse with a tile roof.

This wharf receives about 400 dockages per year.

The outgoing freight consists principally of cement, iron, gasoline, and plumbing materials, and will amount to about 172 tons per year. The incoming freight consists largely of coal, sand, and gravel, and will amount to about 1,425 tons per year.

Loading and unloading is done by hand and with floating derricks.

This wharf is closed to all water carriers except those engaged in the transaction of business with the United States Engineer Department.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) A paved city street leads to within about 300 feet of this wharf.

(*e*) This wharf, with about 800 feet of water front, is under the control of the Washington district office of the United States Engineer Department.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Delivery and transfer is made by wagon, the regular express trade of the city being utilized for the purpose.

SMOOT'S FOURTEENTH STREET WHARF.

(*a*) Smoot's Wharf is located on Water Street, near Fourteenth Street SW. It is a wooden bulkhead landing. There is a crude wooden hopper on the wharf. At the lower end there is a wooden-capped pile wharf. The receipts at this wharf are sand, gravel, lumber, and ties.

Loading and unloading is done by hand and with floating derricks.

(*b*) There is no physical connection with any railroad.

(*c*) Water Street is paved.

(*e*) Delivery is made by wagons, which receive their loads by being driven beneath the hopper mentioned above.

WHITE OAK COAL CO.

(*a*) The White Oak Coal Co.'s Wharf is located on Water Street, near Fourteenth Street SW. The wharf is an ordinary pile structure, in fair condition. A sawmill is located in the yard near the wharf.

Vessels berth at the river end of the wharf and in a slip on the east side. There are no mechanical devices for handling freight.

(*b*) There is no physical connection with any railroad.

(*c*) Water Street is paved.

J. H. CARTER & CO.

(*a*) J. H. Carter's Wharf is located at Thirteenth and Water Streets SW. The wharf is an ordinary pile structure, in fair condition. This wharf is used as a receiving station for J. H. Carter & Co. There are no outshipments. About 3,727 tons of cordwood are received per year.

This wharf is open to use by all water carriers on equal terms. Wharfage rates are as follows:

Lumber, 15 cents per thousand feet.
Wood, 15 cents per cord.
Bricks, 15 cents per thousand.

(*b*) There is no physical connection with any railroad.

(*c*) Water Street is paved.

J. MAURY DOVE CO.

(*a*) The J. Maury Dove Co. Wharf is located at Thirteenth and Water Streets SW. The wharf is an ordinary pile structure, in good condition. There are no mechanical handling devices. There are a wood and coal yard, sawmill, and stable in connection with the wharf.

This wharf receives about 416 dockages per year, principally from wooden sailing vessels. The outgoing shipments consist in coal used

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

or coaling steam vessels. This will amount to about 1,044 tons er year. The incoming freight consists of wood only and will mount to about 3,000 cords per year.

This wharf is closed to all water carriers except those engaged ı the transaction of business with the J. Maury Dove Co.

(*b*) There is no physical connection between this wharf and any ailroad, and no mutual contract for the interchange of traffic.

(*c*) This wharf is accessible by paved city streets.

(*e*) Delivery and transfer of freight passing over this wharf is ffected by the J. Maury Dove Co. with their own teams.

JOHNSON & WIMSATT.

(*a*) Johnson & Wimsatt's Wharf is located on Water Street beveen Twelfth and Thirteenth Streets SW. The wharf is a cappedile structure fringing a solid fill bulkhead pier. There are no ıechanical handling devices. A lumber-storage yard is located on ıe city side of Water Street and operated in connection with this 'harf.

The outgoing shipments from this wharf are about 2,500,000 feet f lumber per year. The incoming freight consists of lumber, laths, ıingles, etc., and will amount to about 8,900 tons per year. All ıading and unloading is done by hand.

This wharf is closed to all water carriers except those engaged in ıe transaction of business with Johnson & Wimsatt.

(*b*) There is no physical connection between this wharf and any ıilroad and no mutual contract for the exchange of traffic.

(*c*) This wharf is accessible by paved city streets.

(*e*) The wharf is operated by Johnson & Wimsatt, lumber deals, being held on lease from the District of Columbia. The storage ırd on the city side of the marginal street is rented from the Southn Railway Co. Johnson & Wimsatt have a small number of teams ır delivery of material sold at wholesale.

W. W. RILEY'S WHARF.

(*a*) Riley's Wharf is located on Water Street between Eleventh ıd Twelfth Streets SW. This wharf consists of three piers, as llows:

1. Upper pier, known as manure wharf.
2. Middle pier, known as fish wharf.
3. Lower pier, known as oyster wharf.

All three are wooden-pile wharves fringing solid-fill bulkhead ers. A hopper on the manure wharf, for loading gravel, etc., into ıgons, is the only mechanical handling device. There are no genal warehouses.

This wharf receives about 416 dockages per year.

The outgoing shipments from this wharf are confined to oyster ells, and will amount to about 2,100 tons per year. The incoming eight consists principally of lumber, oysters, watermelons, and fish. d will amount to about 6,106 tons per year.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

All loading and unloading is done by hand.

This wharf is open to use by all water carriers on equal ter Oyster boats pay a dockage rate of $1 per day for first and sec berths, and 50 cents per day for berths beyond two boats. Wharfa rates are as follows:

Watermelons, 20 cents per hundred.
Fish, 20 cents per hundred.
Potatoes, 2 cents per barrel.
Laths, 5 cents per thousand.
Lumber, 15 cents per thousand feet.

(*b*) There is no physical connection with any railroad and mutual contract for the interchange of traffic.

(*c*) This wharf is accessible by paved city streets.

(*e*) This wharf is in possession of and operated by Mr. W. W Riley. It was formerly leased to Mr. Riley by the District of Colum bia, and is now in litigation. There are 22 subtenants on the pro erty, all fish and oyster dealers. The length of frontage involve is 496 feet. All delivery is made by the regular city transfer a express trade.

E. MADISON HALL'S WHARF.

(*a*) Hall's Wharf is located on Water Street between Tenth a Eleventh Streets SW. The wharf is a solid-fill bulkhead pier. T bulkhead is partly timber and partly stone. A three-path ice cha leads from the wharf into old ice house, which is now unused.

This wharf is used solely as a receiving point for lumber, abo 4,640 tons per year being received.

All unloading is done by hand.

This wharf is closed to all water carriers except those engaged the transaction of business with E. Madison Hall.

(*b*) There is no physical connection with any railroad and mutual contract for the interchange of traffic.

(*c*) This wharf is accessible by paved city streets.

(*e*) Mr. E. Madison Hall holds this wharf on sublease from th American Ice Co. As a consideration he pays 15 cents for ea thousand feet of lumber loaded at the wharf. All delivery a transfer is made by the customers of Mr. Hall.

L. A. CLARKE & SON.

(*a*) Clarke's Wharf is located at Tenth and Water Streets SW The wharf is a capped-pile structure in poor condition. It receiv about 187 dockages per year, mostly from river sailing vessels. Ther are no outshipments. The incoming freight is as follows:

Wood, 7,000 cords per year.
Ties, 6,000 per year.
Lumber, 200,000 feet per year.

All unloading is done by hand.

This wharf is closed to all water carriers except those engaged the transaction of business with L. A. Clarke & Son.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) This wharf is accessible by paved city streets.

(*e*) This wharf, with 280 feet of water front, is leased by L. A. Clarke & Son direct from the District of Columbia. The lease expired May 1, 1913. All delivery and transfer is made by the customers of the firm, who are retail dealers.

AMERICAN ICE CO.

(*a*) The American Ice Co. Wharf is located at Ninth and Water Streets SW. It is a capped-pile structure in fair condition. There is a wagon shed and large ice house at the wharf. One ice chute is the only device for mechanical handling.

This wharf receives about 372 dockages per year. There are no outshipments. The incoming shipments for 1912 were:

Paving block, about 3,094 tons.
Ice, about 3,000 tons.

All loading and unloading is done by hand.

This wharf has heretofore been open to use by all water carriers on equal terms, but it is understood that from now on it is to be closed. Wharfage rates charged are as follows:

Canned goods, one-fourth cent per case.
Lumber, 15 cents per thousand feet.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) This wharf is accessible by paved city streets.

(*e*) This wharf is held by the American Ice Co. under lease from the District of Columbia. Ice delivery is made by the ice company in its own wagons. Other articles are delivered by the customer or by the general express trade of the city.

DISTRICT SAND YARD.

(*a*) The district sand yard is located at Ninth and Water Streets SW. The wharf is a very substantial pile structure. The piles are braced with 3 by 12 inch timbers. There is a curved steel track on the wharf, laid at standard gauge, upon which is operated a traveling steam crane with arm long enough to reach any part of the yard from some point on the track. It has a clam-shell bucket and a capacity of 6 tons at 20-foot radius and 2 tons at 50-foot radius. Alongside the main wharf is an elevated platform approached by a ramp. The platform is upon high piles, with 4 by 6 inch bracing, and is in good condition. The ramp is in poor condition. This platform is intended for use in loading street sweepings and manure for Occoquan. There are bins with six chutes for loading wagons, which drive underneath between the concrete walls which support the bins. The bins will hold 120 cubic yards of material.

This wharf receives about 469 dockages per year. The outgoing freight consists principally of cement and coal for Occoquan and will

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

amount to about 4,000 tons per year. The incoming freight consi- largely of sand and gravel and will amount to about 22,000 cu yards per year.

Loading and unloading is done with the steam crane descril above. With this apparatus 27.5 yards of material per hour is re- moved from a vessel and placed in the bins.

This wharf is closed to all water carriers except those engaged i the transaction of business with the government of the District Columbia.

(*b*) There is no physical connection with any railroad and n mutual contract for the interchange of traffic.

(*c*) This wharf is accessible by paved city streets.

(*e*) This yard was placed in operation in April, 1912. Material received are hauled away by wagons and carts, part of which a owned by the District of Columbia and part hired. About 67 load per day leave the yards.

JOHNSON & WIMSATT'S LOWER WHARF.

(*a*) Johnson & Wimsatt's lower wharf is located on Ninth and Water Streets SW. It is a solid-fill pier, with capped-pile wharf at outer end in good condition. There are no warehouse facilities; lumber is piled in the open.

All loading and unloading is done by hand.

This wharf is closed to all water carriers except those engage in the transaction of business with Johnson & Wimsatt.

(*b*) There is no physical connection with any railroad and n mutual contract for the interchange of traffic.

(*c*) This wharf is accessible by paved city streets.

FORSBERG'S WHARF.

(*a*) Forsberg's Wharf is located at Eighth and Water Streets SW. It is a solid-fill pier with a stone bulkhead. There is a small fram one-story warehouse and stables on the pier. This wharf receive about 730 dockages per year; about 22,500 passengers per year arrive and depart.

The outgoing freight consists principally of subsistence supplie ordnance, etc., and will amount to about 1,630 tons per year. Th incoming freight consists largely of household goods and empty re ceptacles.

This wharf is closed to all water carriers except those engaged i the transaction of business with the Quartermaster Department o the United States Army.

(*b*) There is no physical connection with any railroad and n mutual contract for the interchange of traffic.

(*c*) This wharf is accessible by paved city streets.

(*e*) This wharf, with about 156 feet of water front, is leased b the District of Columbia to Mr. G. W. Forsberg for $733 per year and a portion rented to the Quartermaster Department by Mr. Fors berg.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

POTOMAC & CHESAPEAKE STEAMBOAT WHARF.

(*a*) The Potomac & Chesapeake Wharf is located at Eighth and Water Streets SW. The wharf is a wooden-pile structure in poor condition. There is a large one-story warehouse and the wharf is lighted by two electric arc lamps.

This wharf receives about 468 dockages per year. About 15,000 passengers per year arrive and depart.

The outgoing freight consists largely of groceries and household goods. The incoming freight consists principally of farm and river products. All loading and unloading is done with hand trucks over gangplanks.

This wharf is closed to all water carriers except the Potomac & Chesapeake Steamboat Co.

(*b*) There is no physical connection with any railroad. The Potomac & Chesapeake Steamboat Co. has mutual contracts for the interchange of traffic with the Baltimore & Ohio Railroad and with the Pennsylvania Railroad.

(*c*) This wharf is accessible by paved city streets.

(*e*) This wharf, with 198 feet of water front, is leased from the District of Columbia for $810 per year. The lease expires March 15, 1913.

STEPHENSON'S WHARF.

(*a*) Stephenson's Wharf is located at Water and L Streets SW. It is a wooden-capped pile structure fringing a solid-fill pier. There are two small wooden derricks on the wharf by which coal is hoisted by horsepower. There is a large warehouse on the wharf also.

This wharf receives about 208 dockages per year. About 25,000 passengers per year arrive and depart.

The outgoing freight consists principally of merchandise, beer, etc., and will amount to about 1,560 tons per year. The incoming freight consists largely of coal, canned goods, vinegar, and oil, and will amount to about 15,360 tons per year. Loading and unloading is done by hand, with the derricks mentioned above, and with hand trucks over a gangplank.

This wharf is closed to all water carriers except those engaged in the transaction of business with Stephenson & Bro. and the Maryland, Delaware & Virginia Railway Co.

(*b*) There is no physical connection with any railroad, and no mutual contract for the interchange of traffic with any railroad company.

(*c*) This wharf is accessible by paved city streets.

(*e*) This wharf, with 300 feet of water front, is leased by the District of Columbia to Joseph P. Stephenson for $2,300 per year.

Stephenson & Bro., in the operation of their coal business, make deliveries within the limits of the city of Washington. For this purpose they use 3 wagons and 11 carts. Most transfer and delivery of steamboat freight is made by merchants or by private teams.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

About one-third of the incoming steamboat freight is received un special free-delivery contract and is delivered under contract Leishear & Sons, expressmen.

NORFOLK & WASHINGTON WHARF.

The Norfolk & Washington Wharf is located on Seventh Street SW It is a wooden-pile structure in fair condition. Dockages are made a end of wharf and in south slip. Two large frame warehouses form an L about a paved courtyard.

This wharf receives about 365 dockages per year. The total amount of freight handled is about 39,075 tons per year.

All loading and unloading is done with hand trucks over a gang plank.

This wharf is closed to all water carriers except the Norfolk & Washington Steamboat Co.

(*b*) There is no physical connection with any railroad. The Norfolk & Washington Steamboat Co. has mutual contracts with the Baltimore & Ohio, Chesapeake & Ohio, Pennsylvania, Southern, and Washington Southern Railway Cos.' and with the Potomac & Chesapeake Steamboat Co., for the interchange of traffic, but only a very small proportion of the total freight is shipped in accordance with these contracts.

(*c*) This wharf is accessible by paved city streets.

(*e*) The Norfolk & Washington Wharf, with 190 feet of water front, is leased from the District of Columbia for $2.345 per year.

Goods shipped for free delivery are delivered under contract with the Merchants' Transfer & Storage Co.

MOUNT VERNON AND MARSHALL HALL WHARF.

(*a*) The Mount Vernon and Marshall Hall Wharf is located on Seventh Street SW. It is a double-pile pier, with slip between.

The freight pier is a wooden-pile structure in poor condition. There is a crude wooden derrick and a dilapidated wooden runway on four-legged sawhorse trestles leading to a coal pile. The passenger pier is entirely shedded over.

This wharf receives about 1,095 dockages per year. About 500,000 passengers per year arrive and depart. The outgoing freight consists of supplies for Marshall Hall, and will amount to about 7,500 pieces per year. No freight is received. This wharf is closed to all water carriers except the Mount Vernon & Marshall Hall Steamboat Co.

(*b*) There is no physical connection with any railroad and no contract for the interchange of traffic.

(*c*) This wharf is accessible by paved city streets.

(*e*) This wharf, with 125 feet of water front, is leased to the Mount Vernon & Marshall Hall Steamboat Co. by the District of Columbia for $600.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

FERRY LANDING.

(*a*) The Ferry Landing is located at Seventh and M Streets SW. t is a light pile structure in very poor condition. This wharf is ot in use at present. It is leased to the Norfolk & Washington teamboat Co. by the District of Columbia for $1,200 per year.

DISTRICT MORGUE.

(*a*) The District of Columbia Morgue is located on Seventh Street W. Its wharf is a high pile structure in poor condition. Several w launch landings are attached to the main wharf.

FIRE DEPARTMENT WHARF.

(*a*) The Fire Department Wharf is located on Seventh Street SW. t is a pile structure in good condition. Its piles are braced diagnally with 3 by 10 inch timbers. There are electric lights on the harf. This wharf furnishes a berthing place for the District of olumbia fire boat *Firefighter*.

HARBOR MASTER'S WHARF.

(*a*) The Harbor Master's Wharf is located on Seventh Street SW. t has a small landing for District of Columbia harbor boats.

COLONIAL BEACH CO.

(*a*) The Colonial Beach Co.'s Wharf is located at Seventh and N treets SW.

It is a rectangular wooden pile pier in fair condition. The shore d is shedded over and used for passengers, while the river end is sed for the storage of coal. There is a small pile pier alongside in ir condition. The passenger shed is lighted with electricity. here are a two-story frame warehouse and a two-story frame office ilding.

This wharf receives about 120 dockages per year. About 150,000 ssengers per year arrive and depart. Only a small amount of eight is handled. About $800 in freight rates is collected annually. This wharf is closed to all water carriers except the Colonial each Co.

(*b*) There is no physical connection with any railroad and no ntract for the interchange of traffic.

(*c*) This wharf is accessible by paved city streets.

(*e*) The Colonial Beach Wharf, with 132 feet of water front, is ased by the District of Columbia to the Colonial Beach Co. for 00 per year. The lease expires March 15, 1913.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

ANGLER EXCURSION PIER.

(*a*) Angler Excursion Pier is located at N and Water Streets SW.

It is a pile wharf in fair condition. There is a passenger shed on the shore end, and the outer end is used for the storage of junk.

This wharf receives about 365 dockages per year. About 39,000 passengers per year arrive and depart.

There are no freight shipments or receipts. This wharf is closed to all water carriers except the Independent Steamboat & Barge Co.

(*b*) There is no physical connection with any railroad.

(*c*) This wharf is accessible by paved city streets.

(*e*) The Angler Excursion Pier, with about 120 feet of water front, is leased by the District of Columbia to the Independent Steamboat & Barge Co. for $300 per year.

RILEY'S WHARF.

(*a*) Riley's Wharf is located at Sixth and Water Streets SW. It is a solid-fill pier with a wooden bulkhead. There is a warehouse on the wharf and a launch landing just south of the main pier. There is also a storage yard across Water Street.

About 3,105 tons per year of lumber, laths, etc., are received at this wharf.

All unloading is done by hand. This wharf is open to use by all water carriers on equal terms. The wharfage rate is 15 cents per 1,000 feet of lumber.

(*b*) There is no physical connection with any railroad and no contract for the interchange of traffic.

(*c*) This wharf is accessible by paved city streets.

(*e*) Riley's Wharf, with 249 feet of water front, is leased by the Chief of Engineers, United States Army, to Mr. William W. Riley for $1,200 per year. The lease expires February 7, 1917. All transfer and delivery is made by wagons belonging to Mr. Riley. Five teams are used for this purpose.

NAVAL MILITIA WHARF.

(*a*) The District of Columbia Naval Militia Wharf is located on Water Street near the foot of Sixth Street SW.

It is a new pile structure in good condition. The piles are braced with 2 by 12 inch planking.

There are no mechanical handling devices.

LIGHTHOUSE WHARF.

(*a*) The United States Lighthouse Wharf is located at Water and O Streets SW.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

It is a new pile structure in excellent condition. There are no mechanical handling devices. A large attractive one-story warehouse with a tile roof is on the wharf.

About 400 tons per year of coal, miscellaneous supplies, and equipment for the Lighthouse Service is shipped from this wharf.

(*b*) There is no physical connection with any railroad.

(*c*) A paved roadway leads to Water Street, which is also paved.

WASHINGTON BARRACKS.

(*a*) The Washington Barracks Wharf is located on the left bank of the Washington Channel about 400 feet below P Street SW.

The wharf is a pile structure in good condition. The piles are braced with 3 by 6 inch timbers. It has a wharf end about 100 by 50 feet, a pier about 20 feet wide, and a length over all of about 200 feet. This wharf is used for the shipment and receipt of supplies, troops, and coal. It serves as a berthing place for revenue and other boats. There is considerable traffic in summer between this wharf and Fort Foote, Md., and the rifle range near Alexandria, Va.

All loading and unloading is done by hand.

This wharf is closed to all water carriers except those engaged in the transaction of business with the United States War Department.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) A well-kept macadam wagon road leads from the wharf to other points of the military reservation.

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2. ANACOSTIA RIVER, D. C.

(*a*) The Anacostia River rises in Prince Georges County, Md., and flowing 20 miles in a southwesterly direction joins the Potomac River in the District of Columbia.

Its wharves are wooden-pile structures and solid-fill bulkhead piers. There are 15 terminals on the Anacostia, all on the right bank and in the city of Washington within about 2 miles of the mouth of the river.

The most important terminal is that of the United States navy yard. These wharves receive about 7,075 dockages per year. The outgoing freight consists principally of sand, gravel, naval ordnance and supplies, powder and powder ingredients, and will amount to about 118,069 tons per year. The incoming freight consists largely of gravel, coal, sand, and stone, and will amount to about 548,893 tons per year.

Loading and unloading of bulk material is done largely with steam hoisting engines in connection with steel buckets, with derricks or cables suspended from high cantilever arms. The material is dumped into hoppers, and from the hopper passes to a dump car and thence by elevated tracks to the proper place for dumping. In almost all

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

cases the car leaves the hopper by gravity and returns by the action of a large counterweight.

There are several traveling steam cranes in use at the navy yard.

A portable gasoline derrick is used at the District of Columbia sewage pumping station and at the sewer department property yard. An electric traveling crane has been purchased for use at the sewer department property yard but is not yet installed. Lumber and wood are loaded and unloaded by hand.

The mechanical devices for unloading bulk materials on this river will handle on an average about 67 tons per hour.

Clarke's Wharf and Smith's Wharf are the only ones on the Anacostia River that are open to use by all water carriers on equal terms. The wharfage rate at Clarke's Wharf is 15 cents per cord of wood.

(*b*) The United States navy yard has physical connection with the Pennsylvania Railroad in the shape of spur tracks running parallel and perpendicular to the bulkhead line. Ordinary box cars are run over tidal bridges into large Government barges provided with tracks for the purpose.

There is no mutual contract for the interchange of traffic.

(*c*) There is no marginal street on the Anacostia front of Washington. The majority, but not all, of the streets leading to the wharves are improved.

(*d*) The terminal facilities on the Anacostia River are sufficient for the present traffic, but are not sufficient for the traffic which may reasonably be expected for the near future. Any increase in the trade of Washington will naturally come into the Anacostia River, as the Washington Channel has already almost reached a state of congestion, and the existence of the bridges over the Virginia Channel operates against the utilization of the Georgetown front. As soon as the question of ownership of the water frontage is determined a scheme for the development of the Anacostia front should be devised and all future construction of terminals should be in accordance with the scheme.

(*e*) The present commerce of the Anacostia River is confined to the lower 2 miles of the river. The left or south bank is entirely undeveloped commercially. The water front on this side is owned principally by the United States and will be used by the General Government for park purposes. The right bank is also largely undeveloped. The United States Government owns a large portion of this, and the rest is privately owned. None of the frontage belongs to railroad or steamboat companies.

The District of Columbia leases such of the frontage as the ends of streets and portions where the ownership of the United States is undisputed. As is shown by the following table, 796 feet of frontage is leased for $698.25 per year, an average price of $0.878 per front foot.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

Anacostia River (Eastern Branch).

Name of lessee.	Location.	Expires.	Water frontage.	Rental per year.
			Feet.	
Harry D. Bailey	North side, just west of Anacostia Bridge to west abutment of old Anacostia Bridge.	Oct. 18, 1912	81	$76.00
E. C. Carlsen	Water front between building lines of Fourth Street SE.	June 30, 1913	50	50.00
Edward S. Dean	Water front between the lines of N Street SE.	(1)	.....	67.50
Eastern Power Boat Club	Directly west of the west abutment of the old Anacostia Bridge.	June 30, 1913	93	162.75
Thomas Keely	Water frontage on south bank of, near lot 3, block 7, Twining City, D. C.	Aug. 1, 1911	10	.....
Samuel E. Masson	Water frontage on south bank of river, foot of Naylor Street SE.	Apr. 14, 1912	60	10.00
District of Columbia, sewer division.	Foot of First Street SE., opposite lot 1, square south of square 744.	.....	198 132	....
Thomas W. Smith	Square south of square 744	Nov. 5, 1914	132	132.00
Standard Oil Co	Water front, between building lines of Q Street SE.	Dec. 31, 1915	.....	200.00
United States, Superintendent Capitol Buildings and Grounds.	Foot of First Street SE., opposite square south of square 744.	.....	40	.....
Total	.....	.....	.....	698.25

[1] Monthly lease.

Judicial determination is now under way, which is expected to establish the ownership of the United States to the greater part of the Anacostia frontage.

Transfer and delivery is effected principally by the teams of those in control of the terminals. If these prove insufficient at any time, the regular express trade of the city is drawn upon and is sufficient to meet all demands.

WASHINGTON GAS LIGHT CO.

(*a*) The Washington Gas Light Wharf is located on the right bank of the Anacostia River about one city block above the Anacostia Bridge. It is a capped pile structure in poor condition. The piles are well braced. It is a reversed P in shape, with a wharf end about 36 by 42 feet, a pier about 15 feet wide, and a length over all of about 104 feet. Three pipe lines connect the end of the wharf with shore.

This wharf receives about 52 dockages per year. There are no out shipments. About 10,000 tons of gas oil per year are received. The oil is pumped through pipes from the vessels to the tanks on shore.

This wharf is closed to all water carriers except those engaged in the transaction of business with the Washington Gas Light Co.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) This wharf is not accessible by any street or road.

(*e*) This wharf, with about 750 feet of water front, is owned and operated by the Washington Gas Light Co.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

UNITED STATES NAVY YARD.

(*a*) The United States navy yard is located on the right bank of the Anacostia River at the foot of Fifth, Sixth, Seventh, and Eighth Streets SE. It has about 1,900 feet of water front, and all of it is developed. There is a stone bulkhead protected by pile and timber fenders. Old cannon filled with concrete and set in concrete muzzle up serve as mooring posts.

There are four slips, one for the loading of freight cars onto barges, two for ordinary dockages, and one containing a marine railway and used for repairing vessels. The yard is lighted with electricity.

The outgoing freight is as follows:

Brick, 304 tons per year.
Cement, 284 tons per year.
General merchandise, 322 tons per year.
Iron and steel, 236 tons per year.
Lumber, 400 tons per year.
Oils, 47 tons per year.
Naval ordnance, 24,803 tons per year.
Powder and powder ingredients, 7,477 tons per year.

The incoming freight is as follows:

Coal, 21,155 tons per year.
Naval ordnance and supplies, 12,402 tons per year.

Ordinary railroad cars containing material are run directly onto large barges. Coal is hoisted in a bucket by cable from a cantilever arm, dumped into a hopper, and carried by small cars on a high wooden trestle to the storage bins.

This terminal is closed to all water carriers except those engaged in the transaction of business with the United States Navy.

(*b*) Several spurs from the Pennsylvania Railroad lie parallel and perpendicular to the bulkhead, and several steam cranes travel on these tracks. There is no mutual contract for the interchange of traffic.

(*c*) The navy yard is accessible by paved city streets.

CARTER'S WHARF.

(*a*) Carter's wharf is located on the right bank of the Anacostia River at the foot of Fourth Street SE.

It is a solid-fill bulkhead pier about 225 feet wide. There are no mechanical devices. This wharf receives about 48 dockages per year. Unloading is done by hand.

This wharf is closed to all water carriers except those engaged in the transaction of business with Mr. J. H. Carter.

(*b*) There is no physical connection with any railroad.

(*e*) Delivery is made with wagons.

SMOOT'S WHARF.

(*a*) Smoot's Wharf is located on the right bank of the Anacostia River at the foot of Third Street SE.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

It is a solid-fill bulkhead pier about 75 feet wide. The bulkhead s of timber.

This wharf receives about 1,500 dockages per year. The outgoing hipments consist of sand and gravel, and will amount to about 2,400 ubic yards per year. The incoming freight consists of sand and ravel, and will amount to about 72,000 cubic yards per year. A vooden derrick lifts incoming material to a hopper on a wooden restle. A patent dump car receives it from the hopper and runs y gravity to the proper place in the yard. The car is returned by he action of a large counterweight. Two wooden chutes project ver the water from the platform under the hopper. These are used or loading material into scows. Fifty yards of material per hour an be unloaded by this apparatus.

This wharf is closed to all water carriers except those engaged in he transaction of business with Mr. L. E. Smoot.

(*b*) There is no physical connection with any railroad and no nutual contract for the interchange of traffic.

(*c*) Third Street SE., which leads to the wharf, is paved.

(*e*) Delivery is made by wagons. About 16 teams are in use for his delivery.

L. A. CLARKE & SON.

(*a*) Clarke's Wharf is located on the right bank of the Anacostia River at the foot of Third Street SE. It is a solid-fill bulkhead pier, with a wooden-pile fringe wharf in poor condition. The bulkhead s of stone. There is a sawmill on the wharf.

This wharf receives about 72 dockages per year. There are no outgoing shipments, and about 2,000 cords of wood per year are received. All loading and unloading is done by hand.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 15 cents per cord of wood.

(*b*) There is no physical connection with any railroad.

(*c*) A city street, paved with cobble stones, leads to this wharf.

(*e*) Clarke's Wharf, with about 180 feet of water front, is owned by the American Ice Co. and rented to L. A. Clarke & Son. Delivery is made by wagon and automobile truck.

SEWAGE PUMPING STATION.

(*a*) The District of Columbia sewage pumping station is located on the right bank of the Anacostia River at the foot of Second Street SE.

There is about 550 feet of concrete bulkhead, capped with cut-stone coping. Steel mooring rings are set in the face of the bulkhead. A part of the yard is paved with asphalt blocks. There is a slip about 135 by 45 feet. The wharf is lighted with electricity.

This wharf receives about 2,500 dockages per year. The outgoing freight is as follows:

Sludge, 4,200 cubic yards per year.
Cinders, 21 tons per year.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

About 5,000 tons of coal per year are received. Coal is hoisted by grab bucket and cable to a steel hopper in galvanized-iron tower. The lift is about 75 feet. From the hopper the coal passes through a crusher to a chain drag conveyor and thence to the coal bins. There is an overhead rail in the top of a tunnel opening from the slip. Cinders and sludge are hauled out by buckets suspended from the overhead rail and dumped directly into small scows. About 25 tons of coal can be unloaded per hour.

This wharf is closed to all water carriers except those engaged in the transaction of business with the sewer department.

(*b*) There is no physical connection with any railroad.

(*c*) Second Street, which leads to the sewer pumping station, is paved.

SMITH'S WHARF.

(*a*) Smith's Wharf is located on the right bank of the Anacostia River at the foot of First Street SE.

This wharf is a wooden-pile structure in fair condition. There are no mechanical handling devices. It receives about seven dockages per year. There are no outgoing shipments, and the incoming freight is as follows:

Laths, 184 tons per year.
Lumber, 1,988 tons per year.
Posts, 70 tons per year.
Stone, 4,200 tons per year.

Unloading is done by hand.

This wharf is open to use by all water carriers on equal terms.

(*b*) There is no physical connection with any railroad and no mutual contract for interchange of traffic.

(*c*) The city streets which lead to this wharf are unimproved.

(*e*) Smith's wharf, with 132 feet of water front, is leased to Thomas W. Smith by the District of Columbia for $132 per year. Delivery from the wharf to the lumber yard is made by two-wheeled trucks drawn by horses. There are about 13 of these trucks in use.

SEWER DEPARTMENT PROPERTY YARD.

(*a*) The District of Columbia sewer department property yard is located on the right bank of the Anacostia River at First and O Streets SE. It has a concrete bulkhead, with a good fringe plank wharf of varying width. There is a warehouse about 40 by 20 feet.

This wharf receives about 750 dockages per year. The outgoing shipments are as follows:

Stone, 1,250 yards per year.
Manure, 15,000 tons per year.

The incoming freight is as follows:

Stone, 90,000 yards per year.
Brick, 8,000,000 per year.

There is a steel-truss, stiff-leg derrick which lifts material to an elevated hopper. From the hopper the material is taken in a patent

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

dump car by gravity to the various parts of the yard and dumped. The car returns to the hopper by the action of a large counterweight. Loading material into scows is done by two small flat cars carrying full buckets along a steel 18-inch-gauge industrial track. At the water's edge the buckets are lifted by the derrick and dumped on the scows. A portable derrick with gasoline hoisting engine is sometimes used for loading and unloading. The unloading apparatus handles, on an average, about 22 cubic yards per hour.

This wharf is closed to all water carriers except those engaged in the transaction of business with the sewer department of the government of the District of Columbia.

(*b*) There is no physical connection with any railroad, and no mutual contract for the interchange of traffic.

(*c*) The city streets which lead to this wharf are not improved.

(*e*) Delivery from this yard is made entirely with wagons. About 10 wagon loads per day, on an average, are hauled away from this yard.

COLUMBIA GRANITE & DREDGING CORPORATION.

(*a*) The Columbia Granite & Dredging Corporation wharf is located on the right bank of the Anacostia River at One-half and Q Streets SE.

It is a solid-fill bulkhead pier. The bulkhead is of stone, and the river face of the pier is about 90 feet long.

This wharf receives about 1,400 dockages per year. The outgoing freight consists of sand, gravel, and crushed stone and will amount to about 1,000 cubic yards per year. The incoming freight consists of sand, gravel, and crushed stone and will amount to about 77,373 cubic yards per year.

A tall wooden derrick lifts material from scows to a hopper on an elevated platform. Patent dump cars run away from the hopper by gravity, and return by action of a large counterweight. There are two tracks radiating from the hopper. By this apparatus about 30 cubic yards of material per hour are unloaded. This wharf is closed to all water carriers except those engaged in the transaction of business with the Columbia Granite & Dredging Corporation.

(*b*) There is no physical connection with any railroad, and no mutual contract for the interchange of traffic.

(*c*) The city streets leading to this wharf are not improved.

(*e*) This wharf is owned by the Richards estate, and is rented to the Columbia Granite & Dredging Corporation. The rental paid is understood to be $1,000 per year.

Delivery is made by the company in its own wagons. An average of 10 wagons are used continuously for this purpose.

STANDARD OIL WHARF.

(*a*) The Standard Oil Wharf is located on the right bank of the Anacostia River near the foot of Q Street SE.

It is a long, narrow, very light pile pier, carrying a pipe line. The trestle bents consist of two vertical poles, a cap, and diagonal brac-

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

ing. There is a high wooden handrail on one side of pier. It is 5 feet wide, about 420 feet long, and changes its direction at near its middle point.

This wharf receives about 12 dockages per year.

(*b*) There is no physical connection with any railroad.

(*c*) The city streets leading to this wharf are not improved.

COLUMBIA GRANITE & DREDGING CORPORATION.

(*a*) The Columbia Granite & Dredging Corporation wharf is located on the right bank of the Anacostia River, near the foot of Q Street SE. It is a wooden platform on top of a solid-fill bulkhead wharf. The bulkhead is of concrete protected by a timber fender frame, and is about 150 feet long. Twelve-inch cast-iron pipe filled with concrete serve as mooring posts. This wharf is not now in use, except as a temporary berthing place for scows.

ASPHALT BLOCK WHARF.

(*a*) The Asphalt Block Wharf is located on the right bank of the Anacostia River near the foot of South Capitol Street. It is a pile structure in poor condition. It has a river face about 84 feet long. The fender system is in good condition. This wharf receives about 240 dockages per year.

The outgoing shipments amount to about 1,600 tons of paving blocks per year. The incoming freight is as follows:

Asphalt, 1,344 tons per year.
Coal, 1,200 tons per year.
Stone, 15,525 tons per year.

Material is lifted by hoisting engine and cable bucket to an elevated hopper, and is carried away by a patent dump car which runs from the hopper by gravity and returns by the action of a large counterweight. The lift is about 60 feet.

This wharf is closed to all water carriers except those engaged in the transaction of business with the Washington Asphalt Block & Tile Co.

(*b*) There is no physical connection with any railroad, and no contract for the interchange of traffic.

(*c*) South Capitol Street is paved.

(*e*) This wharf, with about 165 feet of water front, is owned by the Washington Asphalt Block & Tile Co.

NIGHT SOIL WHARF.

(*a*) The Night Soil Wharf is located on the right bank of the Anacostia River at the foot of South Capitol Street. It is an old pile structure in very bad condition. There is a large open shed on one side of the wharf. This wharf receives about 104 dockages per year.

The outgoing freight consists of night soil, about 15,600 barrels of which is shipped per year. There are no receipts.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Loading is done by rolling barrels down an inclined pair of skids.

This wharf is closed to all water carriers, except those engaged in the transaction of business with Mr. Warner Stutler.

(*b*) There is no physical connection with any railroad.

(*c*) South Capitol Street is paved.

(*e*) This wharf is controlled by Mr. Warner Stutler.

POTOMAC SAND & GRAVEL CO.

(*a*) The Potomac Sand & Gravel Co.'s wharf is located on the right bank of the Anacostia River at the foot of South Capitol Street. It is a solid-fill bulkhead wharf with timber and concrete bulkhead. There is no warehouse.

This wharf receives about 390 dockages per year. The outgoing freight consists of sand and gravel, and will amount to about 1,280 yards per year. The incoming freight consists of sand and gravel, and will amount to about 48,574 yards per year.

A stiff-leg derrick with steam hoisting engine lifts sand and gravel to an elevated bin, from which it descends by gravity into a patent dump car, which runs down an elevated track by gravity, is dumped, and returns to the bin by the action of a large counterweight through a cable. Clam-shell buckets are used. The steam engine is about 35 horsepower. By this method about 54 yards of material per hour can be unloaded if no accidents occur.

This wharf is closed to all water carriers except those engaged in the transaction of business with the Potomac Sand & Gravel Co.

(*b*) There is no physical connection with any railroad and no contract for the interchange of traffic.

(*c*) South Capitol Street is paved.

(*e*) This wharf, with about 450 feet of water front, is owned by Mr. Martin. All delivery is made by wagon. The company has 17 teams for this purpose. About 35 yards of sand and gravel are hauled away daily.

JAMES CREEK CANAL.

(*a*) The old James Creek Canal joins the Anacostia River just east of the Army War College.

It is used for the transportation of wood, brick, and lumber on barges.

The outgoing freight consists of brick and brick clay, and will amount to about 51,475 tons per year.

The incoming freight consists of gravel, coal, cord wood, and lumber, and will amount to about 20,991 tons per year.

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3. POTOMAC RIVER AT ALEXANDRIA, VA.

(*a*) Alexandria is a city of 15,329 inhabitants, located in Alexandria County, Va., on the right bank of the Potomac River, about miles below Washington.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Alexandria has 18 regular shipping wharves or landings. Seven of these are wooden pile structures, generally in fair condition. The others are solid-fill bulkhead piers or bulkhead landings. Vessels berth both at the ends of piers and in the slips.

These wharves receive about 8,091 dockages per year. About 34,000 passengers per year arrive and depart. The outgoing freight consists principally of fertilizer, general merchandise, coal, and building material, and will amount to about 43,664 tons per year. The incoming freight consists largely of lumber, fish, coal, and wood, and will amount to about 206,473 tons per year.

The greater part of the loading and unloading is done by hand, but there are five wharves equipped with mechanical handling devices.

There is one traveling steam crane, one electric drum hoist, two small cranes with steam hoisting engines, and three cranes where hoisting is done with horses.

The average rate of unloading of materials by these devices is [illegible] tons per hour.

Five of the wharves of Alexandria are open to use by all water carriers on equal terms. The following are examples of wharfage rates charged:

Railroad-borne traffic, $2 per carload.
Fish, 15 cents per thousand.
Watermelons, 20 or 25 cents per hundred.
Lumber, 10 cents per thousand feet.
Brick, 10 cents per thousand.

At the Marshall Hall wharf vessels, except those bringing watermelons, pay dockage in lieu of wharfage. Dockage rates vary from 25 cents to $1.50 per vessel.

(*b*) The Southern Railway has from one to three tracks along Union Street along the whole of the developed water front of Alexandria. This railroad connects by spur with five of the Alexandria wharves, but it is only at two of these wharves that this connection is utilized to any extent. About 90 per cent of the freight passing over Smoot's Wharf is received or dispatched by rail.

(*c*) Union Street, which is paved, forms a marginal street for the greater part of the Alexandria water front. The Strand is a private street owned by the riparian owners, which serves as a marginal street for about 800 feet, or two city blocks. It is said that the Strand was at one time paved, but there is no visible evidence to that effect.

(*d*) The wharves of Alexandria seem ample in number for the present traffic, and for the future traffic so far as it now can be foreseen.

(*e*) The water front of Alexandria is almost a mile and a half long. The greater part of this frontage is privately owned and privately controlled. The United States Government claims to own about 2,200 feet of front between Agnew's Wharf and the Jones Point Lighthouse. The Southern Railway owns several detached sections of unimproved front. The total of these sections is estimated to be about 1,250 feet. The city of Alexandria owns the greater part of the street ends; also one-half block of undeveloped front just be[illegible]

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

Dean's shipyard, and 160 feet of front comprising the fish wharf and the upper part of Smoot's Wharf at the foot of Oronoco Street. This frontage is developed and is leased to Mr. George E. Price and Mr. W. A. Smoot at a price which averages about $2.72 per foot of water frontage. The Norfolk & Washington Steamboat Co. owns one wharf and the ferry slip, with about 180 feet of water front. The Maryland, Delaware & Virginia Railway Co. (steamship line) controls one wharf by lease from the Mutual Ice Co.

A large part of the delivery and transfer is made by the wharf owners with their own teams. The rest is made by the regular express trade of the city of Alexandria, Va.

BRYANT'S WHARF.

(*a*) Bryant's Wharf is located on the right bank of the Potomac River at the foot of North Lee Street.

It is a solid-fill bulkhead pier about 180 feet wide. The bulkhead is formed of heavy timbers, those at the corners being strongly braced. The earthen fill of the pier is not graded. There is one large jib crane with a steel dumping bucket and a 25-horsepower hoisting engine.

This wharf receives about 200 dockages per year. About 1,000 tons of fertilizer per year are shipped away from this wharf.

The incoming shipments are as follows:

Oyster shells, 5,000 tons per year.
Fish, 500 tons per year.
Potash, 1,500 tons per year.

Loading and unloading is done with the jib crane mentioned above. This device unloads about 15 tons of material per hour.

This wharf is closed to all water carriers except those engaged in the transaction of business with Herbert Bryant's Son.

(*b*) The Southern Railway runs parallel to the river bank and about one block away, but has no physical connection with this wharf.

(*c*) An unimproved wagon road leads to the pier.

(*e*) Bryant's Wharf, with about 180 feet of water front, is owned by Herbert Bryant's Son. Material is removed from the end of the pier in two-wheeled dump carts.

ALEXANDRIA FERTILIZER & CHEMICAL CO.

(*a*) The Alexandria Fertilizer Wharf is located in the city of Alexandria, Va., on the right bank of the Potomac River at the foot of Oronoco Street.

It consists of a wooden bulkhead in poor condition and a part of an old pile wharf. Just below is a solid-fill bulkhead pier partly floored with plank.

This wharf receives about 25 dockages per year. There are no outshipments. About 1,560 tons per year of iron pyrites are received.

Unloading is done with wheelbarrows; the haul is 30 to 50 feet.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

This wharf is closed to all water carriers except those engaged in the transaction of business with the Alexandria Fertilizer & Chemical Co.

(*b*) A spur from the Southern Railway comes to the water's edge on this pier, but is not used in connection with water-borne traffic.

(*c*) An unimproved city street leads to this wharf.

(*e*) This wharf, with about 350 feet of water front, is owned by the American Agricultural Co., of which the Alexandria Fertilizer & Chemical Co. is said to be a branch.

FISH WHARF.

(*a*) The Fish Wharf is located in Alexandria, Va., on the right bank of the Potomac River, at the foot of Oronoco Street.

It is a solid-fill timber bulkhead pier in poor condition. This wharf receives about 900 dockages per year. There are no out shipments. The incoming freight is as follows:

Fish, 400,000 per year.
Watermelons, 100,000 per year.

All loading and unloading is done by hand.

This wharf is open to use by all water carriers on equal terms. Wharfage rates are as follows:

Fish, 15 cents per thousand.
Melons, 20 cents per hundred.

(*b*) The Southern Railway passes within one-half city block of this wharf, but there is no direct connection between the two.

(*c*) An unimproved city street leads to this wharf.

(*e*) The Fish Wharf, with about 160 feet of water front (not including foot of Oronoco Street), is owned by the city of Alexandria. All except the lower 24 feet of this frontage is leased by the year to Mr. George E. Price. The lease will expire March 1, 1913. The price paid by Mr. Price is said to be $240 per year. The provisions of the lease require all fish and watermelons entering Alexandria to land at this wharf and pay wharfage to Mr. Price. The gross revenue is about $500 per year. Delivery and transfer are effected by the regular Alexandria express trade.

SMOOT'S WHARF.

(*a*) Smoot's wharf is located in Alexandria, Va., on the right bank of the Potomac River, at the foot of Princess Street.

Its wharf is a long narrow rectangular pier about 18 by 285 feet.

This wharf receives about 750 dockages per year.

The outgoing freight is as follows:

Stone, 4,000 tons per year.
Miscellaneous, 5,500 tons per year.

The incoming freight is as follows:

Coal, 50,000 tons per year.
Fertilizer, 5,000 tons per year.
Wood, 2,500 cords per year.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Sand, 21,000 cubic yards per year.
Gravel, 12,000 cubic yards per year.
Miscellaneous, 20,000 tons per year.

Loading and unloading are done with a 15-ton traveling steam crane, hand derricks, and small hoists operated by horsepower.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is $2 per carload of material.

(*b*) A spur from the Southern Railway passes along the entire length of the pier, and a branch of this runs along the bulkhead line. In the last year about 72,000 tons of material which had passed over this wharf was shipped via the Southern Railway and about 36,000 tons via the Washington & Ohio Railroad. About 90 per cent of the traffic on the wharf is commercial. There is no mutual contract for the interchange of traffic and no through shipments. The material arriving by water is reshipped by rail, or vice versa. The traveling steam crane runs on the regular railroad spur track.

(*c*) This wharf is accessible by city streets.

(*e*) Smoot's wharf, together with about 400 feet of water front, is owned by Mr. W. A. Smoot. Mr. Smoot also leases 24 feet of front from the city of Alexandria, for which he pays $195 per year rental.

ALEXANDRIA FERTILIZER & CHEMICAL CO.

(*a*) The Alexandria Fertilizer & Chemical Co.'s lower wharf is located in Alexandria, Va., on the right bank of the Potomac River, at the foot of Queen Street.

It is a substantial wooden-pile pier carrying a heavy two-story wooden trestle and industrial tracks. It is rectangular in shape, about 20 feet wide and 300 feet long. The pier is well equipped with mooring and fender piles at the end and on both sides.

This wharf receives about 21 dockages per year. About 1,000 tons of fertilizer per year is shipped away. The incoming freight consists of phosphate rock and potash salts and will amount to about 25,000 tons per year. A 25-horsepower electric drum hoist raises material to dump cars on top of the trestle.

The maximum output of this plant is 60 tons per hour; the average is 40 tons per hour.

This wharf is closed to all water carriers except those engaged in the transaction of business with the Alexandria Fertilizer & Chemical Co.

(*b*) The Southern Railway passes along the marginal (Union) street. The trestle mentioned above crosses this street above the tracks, and there is a chute by means of which material may be dumped into flat cars below. There is no mutual contract for the interchange of traffic and no through shipments.

(*c*) Union Street is paved.

(*e*) This wharf, with about 200 feet of water front, is owned and operated by the Alexandria Fertilizer & Chemical Co.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

FIELD'S WHARF.

(*a*) Field's Wharf is located in Alexandria, Va., on the right bank of the Potomac River at the foot of Queen Street.

It is a solid-fill timber bulkhead pier. There is one tall light jib crane on the pier and a small capped pile wooden landing in poor condition.

This wharf receives about 1,000 dockages per year. The outgoing freight consists principally of building materials, groceries, oils, and gasoline, and will amount to about 850 tons per year. The incoming freight is as follows:

Lumber, 300 tons per year.
Shingles. 56 tons per year.
Laths, 50 tons per year.

All loading and unloading is done by hand.

This wharf is closed to all water carriers except those engaged in the transaction of business with H. K. Field & Co.

(*b*) A spur from the Southern Railway runs to this wharf, but it is seldom used. There is no mutual contract for the interchange of traffic and no through shipments.

(*c*) Union Street, the marginal street, is paved.

(*e*) This wharf, together with about 150 feet of water front, is owned and operated by H. K. Field & Co. Delivery is made by wagons, of which the Field Co. owns eight.

ICE WHARF.

(*a*) The ice wharf is located in Alexandria, Va., on the right bank of the Potomac River at the foot of Cameron Street.

The wharf is a small wooden platform at the side of the slip. A wooden trestle leads from this platform to a large ice-storage shed. There is a double jib crane frame for loading ice into boats.

This landing receives about 20 dockages per year. About 350 tons of ice per year are shipped out, and about 17,000 tons per year are received. Unloading is generally done with rigging lashed to the masts of vessels.

This wharf is closed to all water carriers except those engaged in the transaction of business with the Mutual Ice Co.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) Cameron Street is paved.

(*e*) The ice wharf, together with the Maryland, Delaware & Virginia Railway Wharf and about 195 feet of water front, is owned by the Mutual Ice Co.

MARYLAND, DELAWARE & VIRGINIA RAILWAY WHARF.

(*a*) The Maryland, Delaware & Virginia Railway Wharf is located in Alexandria, Va., on the right bank of the Potomac River at the foot of Cameron Street.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

It is a wooden-pile wharf at the outer end of a solid-fill bulkhead pier. It is lighted with electricity. There is a large one-story frame warehouse and office.

This wharf receives about 908 dockages per year. About 20,000 passengers per year arrive and depart. The freight handled is, as a rule, general merchandise. About 3,767 tons are shipped out per year, and about 3,833 tons are received in that period.

All loading and unloading is done with hand trucks over a gang plank.

This wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co., The Potomac & Chesapeake Steamboat Co., and the Colonial Beach Co.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) Cameron Street is paved.

(*e*) This wharf is controlled by the Maryland, Delaware & Virginia Railway Co. under a lease from the Mutual Ice Co. The Potomac & Chesapeake Steamboat Co. and the Colonial Beach Co. land under arrangements with the Maryland, Delaware & Virginia Railway Co., to which they pay a fixed percentage of transportation charges not including passenger charges.

SMOOT'S LUMBER WHARF.

(*a*) Smoot's Lumber Wharf is located in Alexandria, Va., on the right bank of the Potomac River, at the foot of Cameron Street.

It is a timber bulkhead. There are no mechanical handling devices.

This landing receives about 300 dockages per year. The outgoing shipments are as follows:

Lumber, 250,000 feet per year.
Shingles, 100,000 per year.
Laths, 200,000 per year.
Millwork, $20,000 worth per year.
Brick, 100,000 per year.
Lime, 1,000 barrels per year.
Cement, 2,000 barrels per year.

The incoming freight is as follows:

Lumber, 200,000 feet per year.
Shingles, 150,000 per year.
Laths, 500,000 per year.

All loading and unloading is done by hand.

This landing is closed to all water carriers except those engaged in the transaction of business with W. A. Smoot & Co. (Inc.).

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) Cameron Street is paved.

(*e*) This wharf, with about 45 feet of water front, is owned and operated by W. A. Smoot & Co. (Inc.). Delivery is made by the company's own wagons; eight are in use for this purpose.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

FIELD'S LOWER WHARF.

(*a*) Field's Lower Wharf is located in Alexandria, Va., on the right bank of the Potomac River, at No. 115 North Union Street.

The landing is a wooden timber bulkhead. This landing receives about 1,000 dockages per year. The outgoing freight consists principally of building material and will amount to about 850 tons per year. The incoming freight consists largely of lumber, canned goods, wood, and groceries, and will amount to about 506 tons per year. All loading and unloading is done by hand.

This wharf is closed to all water carriers except those engaged in the transaction of business with H. K. Field & Co.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) This wharf is accessible by ordinary city paved streets.

(*e*) Field's Lower Wharf, with about 150 feet of water front, is owned and operated by H. K. Field & Co. Delivery is made with wagons, eight of which are on hand for this purpose.

FERRY LANDING.

(*a*) The Ferry Landing is located in Alexandria, Va., on the right bank of the Potomac River, at the foot of King Street.

It is a pile wharf with a ferry slip. It is lighted with gas. There is a large passenger shed and waiting room, and a paved driveway from King Street to the slip. This landing is not now in use. With about 135 feet of water front, this wharf is owned by the Norfolk & Washington Steamboat Co.

MOBREY & LUNT'S PIER.

(*a*) Mobrey & Lunt's Pier is a solid-fill oyster-shell pier at the foot of King Street in Alexandria. It is in very poor condition and not now in use. This wharf, with about 100 feet of water front, is controlled by Mobrey & Lunt.

MARSHALL HALL WHARF.

(*a*) Marshall Hall Wharf is located in Alexandria, Va., on the right bank of the Potomac River, at 109 Strand.

It is a wooden-pile wharf at the end of a solid-fill pier. The wharf is in fair condition. A warehouse extends the full width of the pier. Landings are made at the end and on both sides.

This wharf receives about 2,000 dockages per year. About 14,000 passengers per year arrive and depart.

The outgoing freight consists principally of groceries, hay, and feed for Mount Vernon. The incoming freight is as follows:

Watermelons, 23,000 per year.
Canned fruit, 1,200 cases per year.
Junk, 75 tons per year.
Fish, 5,000 barrels per year.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

All loading and unloading is done by hand and with hand trucks over a gangplank.

This wharf is open to use by all water carriers on equal terms. One-quarter cent per watermelon is collected as a wharfage rate. Other material enters upon payment of a dockage rate, as follows:

Oyster boats, $1.50.
Other vessels, 25 to 75 cents.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) The Strand is not paved.

(*e*) The Marshall Hall Wharf, with about 200 feet of water front, is owned and operated by Walter Roberts. Transfer and delivery is effected by the regular city express trade.

REARDON'S WHARF.

(*a*) Reardon's Wharf is located on the right bank of the Potomac River in Alexandria, Va., near the foot of Prince Street. It is a solid-fill bulkhead pier and is used at present only as a storage place for junk.

NORFOLK & WASHINGTON STEAMBOAT WHARF.

(*a*) The Norfolk & Washington Wharf is located in Alexandria, Va., at the foot of Prince Street.

It is a wooden-pile pier in good condition. It is rectangular in shape, about 250 feet long and about 44 feet wide. It has iron mooring posts and electric lights. There is a large one-story frame warehouse about 100 by 38 feet on the wharf.

This wharf receives about 802 dockages per year. The outgoing freight consists principally of bottles, vinegar, beer, and merchandise, and will amount to about 4,012 tons per year. The incoming freight consists largely of meat, liquors, and drugs, and will amount to about 3,888 tons per year. All loading and unloading is done with hand trucks over a gangplank.

This wharf is closed to all water carriers except the Norfolk & Washington Steamboat Co.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) Prince Street is paved.

(*e*) The Norfolk & Washington Wharf, with about 44 feet of water front, is owned by the Norfolk & Washington Steamboat Co. Delivery and transfer is made by the regular city express trade.

AITCHESON'S WHARF.

(*a*) Aitcheson's Wharf is located in Alexandria, Va., on the right bank of the Potomac River, near the foot of Prince Street.

The wharf consists of two piers with a slip between. The upper pier is a wooden-pile structure in fair condition. It is rectangular

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

in shape, about 165 by 42 feet. There is a one-story frame warehouse, about 40 by 30 feet, now being used for storage of vehicles. The lower pier is a solid-fill bulkhead structure without warehouse or other buildings. There is a wooden jib crane with 15-horsepower steam hoisting engine, and wooden trestle carrying a hopper and industrial track for a patent dump car.

This wharf receives about 10 barge dockages per year. The outgoing freight consists of wood and coal, and will amount to about 23 tons per year. The incoming freight consists of wood and coal, and will amount to about 2,000 tons per year. Wood is loaded and unloaded by hand. Coal is hoisted by means of the jib crane to the hopper, then passes to the dump car, which runs by gravity to the proper place for dumping and returns by the action of a large counterweight. The output of this apparatus is about 20 tons per hour.

This wharf is open to use by all water carriers on equal terms. Wharfage rates are as follows:

Lumber, 10 cents per thousand feet.
Brick, 10 cents per thousand.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) Prince Street is paved.

(*e*) Aitcheson's Wharf, with about 300 feet of water front, is owned and operated by Mr. De Wilton Aitcheson. The greater part of the transfer and delivery is made by wagons owned by Mr. Aitcheson. Six teams are available for this purpose.

VIRGINIA-CAROLINA CHEMICAL CO.

(*a*) The Virginia-Carolina Chemical Co. Wharf is located in Alexandria, Va., on the right bank of the Potomac River at the foot of Duke Street.

It is a solid-fill bulkhead pier, about 30 feet wide, in good condition. The bulkhead is of timber. There are two wooden jib cranes on the upper side of the pier. This wharf receives about 55 dockages per year.

The outgoing freight consists of 2,500 tons of fertilizer per year. The incoming freight consists of fertilizer materials and will amount to about 10,000 tons per year. Unloading is done with the two jib cranes. The material is hoisted in buckets from the holds of vessels by horsepower, one horse to each crane. Each crane will unload at the rate of 10 tons per hour.

This wharf is closed to all water carriers except those engaged in the transaction of business with the Virginia-Carolina Chemical Co.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) Duke Street is paved with cobblestones.

(*e*) The Virginia-Carolina pier, with about 60 feet of water front, is owned by the Virginia-Carolina Chemical Co. Delivery from the cranes to the warehouse, about 100 yards away, is made by ordinary dump carts. Four carts are hired for this purpose.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

AGNEW'S WHARF.

(*a*) Agnew's Wharf is located in Alexandria, Va., on the right bank of the Potomac River at the foot of Franklin Street. It is a wooden-pile structure in bad condition. It is about 300 feet long and 30 feet wide near the shore, flaring out to 43 feet wide at the river end. There is a small wooden pile coal landing just above. This is a rectangular pier about 30 by 10 feet.

This wharf receives about 100 dockages per year. The outgoing freight is as follows:

Ties, 100,000 per year.
Coal, 3,000 tons per year.

The incoming freight is as follows:

Ties, 33,000 per year.
Wood, 500 cords per year.

About one-third of the loading and unloading is done with floating derricks and two-thirds by hand. Loading and unloading at the small coal landing is done by men with wheelbarrows.

This wharf is open to use by all water carriers on equal terms. L. A. Clark & Son, being the principal patron, is given the right of way. The wharfage rate charged is $2 per carload.

(*b*) A spur from the Southern Railway passes along the entire length of the wharf. There is no contract for the interchange of traffic. Material arriving by water is reshipped by rail and vice versa.

(*c*) The city streets leading to Agnew's Wharf are not improved.

(*e*) Agnew's Wharf, with about 300 feet of water front, is owned and operated by the Marine Railway & Coal Co. This company also owns a part interest in 300 feet of undeveloped water frontage a little way above Agnew's Wharf. City delivery is made with wagons.

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4. POTOMAC RIVER AT LOWER CEDAR POINT, MD.

(*a*) Lower Cedar Point is located in Charles County, Md., on the left bank of the Potomac River, about 61 miles below Washington.

There is only one wharf at Lower Cedar Point and it is known as Morgantown. It is a substantial pile structure of a distorted T shape. Its river face is 78 feet long, its pier width is 20 feet, and its length over all is 353 feet. Its piles are not braced. There are two substantial frame warehouses on the wharf and there is a light steel track of standard gauge leading to the shore end of the pier. There is one small hand derrick on the wharf for hoisting light freight.

This wharf receives about 52 dockages per week, including all vessels of all classes and sizes. An average of 10 passengers arrive and depart per week.

The incoming freight consists principally of dry goods, groceries, farm implements, and fertilizer and will amount to about 1,500 tons per year. The outgoing shipments are principally stock, poultry, grain, and tobacco and will amount to about 300 tons per year.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Loading and unloading are done with hand trucks over gang plank.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of transportation charges.

(*b*) The nearest railroad is 8 miles distant.

(*c*) An unimproved wagon road leads to La Plata, Md.

(*e*) This wharf, with about 1 mile of water front, is owned and operated by Mr. Robert Crain. The steamboats of the Maryland, Delaware & Virginia Railway Co. and of the Potomac & Chesapeake Steamboat Co. land here regularly.

There is no person or firm in this vicinity engaged regularly in the transfer or delivery business. A haul of about 7 miles is required for the most distant patron of this wharf.

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5. UPPER MACHODOC CREEK, VA.

(*a*) The Upper Machodoc Creek rises in Virginia, is a tidal estuary, and enters the Potomac River from the south, about 63 miles below Washington.

It has five ports and five wharves or landings. Three of these are pile structures of the ordinary type and two are supported on cribs. Each wharf or landing has a small one-story frame warehouse. The Brickhouse Wharf has a small industrial railway for the transfer of freight between the wharf end and shore.

These landings receive about 780 dockages per year. About 832 passengers per year arrive and depart.

The outgoing freight consists principally of farm produce, railroad ties, poultry, and lumber, and will amount to about 24,590 tons per year.

The incoming freight consists largely of fertilizer, merchandise, building materials, and hay, and will amount to about 380 tons per year.

All loading and unloading is done by hand, with hand trucks or with wheelbarrows.

All the wharves on the Upper Machodoc are open to use by all water carriers on equal terms.

Wharfage rates are as follows:

Steamboat freight, 10 per cent of transportation charge.
Wood, 3 to 5 cents per cord.
Lumber, 30 cents to $1 per 1,000 feet.
Ties, one-fourth cent each.

(*b*) There is no physical connection between any railroad and any of the terminals of this creek.

(*c*) Unimproved wagon roads lead to each of the terminals of the Upper Machodoc.

(*d*) The terminals of the Upper Machodoc are ample in number for the present traffic and for the future traffic, so far as can now be foreseen.

(*e*) None of the terminals of the Upper Machodoc are owned by railroad or steamship companies or by the United States. King

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

George County owns two terminals and two are privately owned. Milford Landing and Oyster Shell Wharf are controlled by individuals, who receive the revenue under the condition that they maintain them open to all carriers and keep them in repair. Service of the most distant patrons of the various wharves requires overland haul of from 5 to 7 miles. No person or firm in this vicinity is regularly engaged in the transfer or delivery business.

MILFORD LANDING.

(*a*) Milford Landing is located in King George County, Va., on the right bank of the Upper Machodoc Creek, about 7.7 miles above the mouth of the creek.

It is a log-crib pier 12 by 28 feet, filled with earth and floored over. There is a warehouse 12 by 14 feet.

This landing receives about 100 dockages per year. About 31 passengers per year arrive and depart.

The outgoing shipments are as follows:

Ties, 100,000 per year.
Lumber, 35,000 feet per year.
Wood, 1,200 cords per year.

The incoming freight consists largely of fertilizer and building materials.

All loading and unloading is done with hand trucks and wheelbarrows.

This wharf is open to use by all water carriers on equal terms.

(*b*) The nearest railroad is at Fredericksburg, Va., about 35 miles distant.

(*c*) An unimproved wagon road leads to Fredericksburg, Va.

(*e*) This wharf, with about 60 feet of water front, is owned by King George County. It is operated by Mr. H. Potts. Mr. Potts formerly owned the land upon which the wharf is located, but sold it to the county, with the condition that he was to control the wharf and receive the revenue. Service of the most distant patron requires a haul of about 7 miles. There is no person or firm in this vicinity regularly engaged in the transfer or delivery business.

OYSTER SHELL WHARF.

(*a*) Oyster Shell Wharf is located in King George County, Va., on the right bank of the Upper Machodoc Creek, about 4½ miles above its mouth. It is a wooden-pile T-shaped structure with a wharf end 16 by 28 feet and a pier 12 by 36 feet. There is a warehouse 20 by 16 feet.

This wharf receives about 100 dockages per year. About 79 passengers per year arrive and depart.

The outgoing freight consists of ties, lumber, farm produce, and onions, and will amount to about 5,600 tons per year. The incoming freight consists largely of general merchandise, fertilizer, and building materials.

(*a*) General location and description
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

All loading and unloading is done by hand or with hand trucks over gangplanks.

This wharf is open to use by all water carriers on equal terms. Wharfage rates are as follows:

General merchandise, 10 per cent of transportation charge.
Wood, 3 cents per cord.
Lumber, $1 per thousand feet.

(*b*) The nearest railroad is at Fredericksburg, Va., about 30 miles distant.

(*c*) An unimproved wagon road leads to Colonial Beach, Va.

(*e*) This wharf, with about 150 feet of water front, is owned by King George County. It is leased to G. W. Price and W. W. Coapley, who are required to keep it in repair. There is no other consideration. Service of the most distant patron requires a haul of about 5 miles. There is no person or firm in this vicinity regularly engaged in the transfer or delivery business.

LITTLE FERRY WHARF.

(*a*) Little Ferry Wharf is located in King George County, Va., on the right bank of the Upper Machodoc Creek, about 4 miles above its mouth. It is a crib structure, solid filled, and protected by pile fenders. It is 30 feet wide and 50 feet long. There is a warehouse 14 feet square.

This wharf receives about 110 dockages per year. About 206 passengers arrive and depart per year.

The outgoing freight consists principally of farm produce, peas, onions, and poultry, and will amount to about 220 tons per year. The incoming freight consists largely of general merchandise, fertilizer, and building materials.

All loading and unloading is done with hand trucks over a gangplank.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charge.

(*b*) The nearest railroad is at Fredericksburg, Va., about 30 miles distant.

(*c*) An unimproved county road leads to Colonial Beach, Va.

(*e*) Little Ferry Wharf, with about 30 feet of water front, is owned by King George County. Service of its most distant patron requires a haul of about 6 miles. There is no person or firm in this vicinity regularly engaged in the transfer or delivery business.

BRICKHOUSE WHARF.

(*a*) Brickhouse Wharf is located in King George County, Va., on the left bank of the Upper Machodoc Creek, about 2½ miles above its mouth.

It is a wooden pile structure in poor condition. It is a T in shape having a wharf end 20 by 40 feet and a pier 180 by 16 feet. There is a warehouse, 14 by 16 feet, and an industrial track leads along the pier to shore.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

This wharf receives about 220 dockages per year. About 245 passengers per year arrive and depart.

The outgoing freight consists principally of farm produce, poultry, eggs, and ties, and will amount to about 7,050 tons per year.

The incoming freight consists largely of general merchandise, fertilizer, hay, and feed, and will amount to about 180 tons per year.

Loading and unloading is done by hand and with hand trucks across a gangplank.

This wharf is open to use by all water carriers on equal terms. Wharfage rates are as follows:

Steamboat freight, 10 per cent of transportation charge.
Ties, ¼ cent each.
Wood, 5 cents per cord.
Lumber, 30 cents per thousand feet.

(*b*) The nearest railroad is at Fredericksburg, Va., about 40 miles distant.

(*c*) An unimproved private wagon road leads toward Rosita, Va.

(*e*) Brickhouse Wharf, with about one-fourth mile of water front, is owned and operated by Miss Lena Johnson. Service of its most distant patron requires a haul of about 8 miles. There is no person or firm in this vicinity regularly engaged in the transfer or delivery business.

BERRY'S WHARF.

(*a*) Berry's Wharf is located in King George County, Va., on the left bank of the Upper Machodoc Creek, about 2 miles above its mouth. It is a pile structure; its shape is a T, with a wharf end 24 by 36 feet and pier 16 by 156 feet. There is a warehouse 14 by 16 feet.

This wharf receives about 250 dockages per year. About 271 passengers per year arrive and depart.

The outgoing freight consists principally of farm produce, fruit, grain, and poultry, and will amount to about 250 tons per year.

The incoming freight consists largely of general merchandise, fertilizer, hay, and feed, and will amount to about 200 tons per year.

All loading and unloading is done with hand trucks over a gangplank.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charge.

(*b*) The nearest railroad is at Fredericksburg, Va., about 40 miles distant.

(*c*) A new public road has just been built to the wharf. It is not improved.

(*e*) Berry's Wharf, with about one-half mile of water front, is owned by Charles Berry. Service of the most distant patron requires a haul of 5 miles. There is no person or firm in this vicinity regularly engaged in the transfer or delivery business.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

6. NOMINI CREEK, VA.

(*a*) The Nomini Creek is a tidal estuary of the Potomac River lying in Westmoreland County. It enters the Potomac from the south, about 80 miles below Washington, D. C.

It has six ports and seven wharves, not including shore landings. The wharves are all wooden pile structures, and are, as a rule, in fair condition. All except one are supplied with warehouse facilities, and some of them have one small oyster or crab hoist.

These wharves receive about 3,000 dockages per year. About 5,670 passengers arrive and depart each year.

The incoming freight consists principally of merchandise, fertilizer, and farm implements, and will amount to about 9,300 tons per year. The outgoing freight consists principally of fruit, poultry, eggs, and oysters, and will amount to about 13,450 tons per year. Oysters, fish, and crabs are hoisted to the wharves from small boats by small light wooden derricks with hand power; all other loading and unloading is done by hand or with hand trucks over a gangplank.

All the main or steamboat wharves on this creek are open to use by all water carriers on equal terms. Wharfage rates are as follows:

Steamboat freight, 10 per cent of transportation charges.
Wood, 10 cents per cord.
Lumber, 10 cents per 1,000 feet.

(*b*) No physical connection exists between any of the terminals of this creek and any railroads, and there is no mutual contract for the interchange of traffic between rail and water lines.

(*c*) Improved highways have not been constructed to any terminal on the Nomini Creek.

(*d*) It is believed that the present terminals are adequate as to number, for the present traffic and for the future traffic, so far as it can now be foreseen.

(*e*) All wharves on the Nomini Creek are owned by individuals or local companies; there are none owned by the county, municipalities, or steamboat companies. The regular traffic of the creek is carried by the steamers of the Potomac & Chesapeake Steamboat Co.

All transfer and delivery is made by the patrons of the wharves with their own teams, except that quite a number of small farmers hire out with their teams when farm work is slack.

PROSPECT, VA.

(*a*) Prospect is located in Westmoreland County, Va., on the left bank of the Nomini Creek, about 7 miles from its mouth.

Its wharf is a log-crib structure, a reversed P in shape, in very poor condition. Its length is 77 feet over all; its wharf end is 26 by 24 feet, and its pier is 14 feet wide. It is used as a landing for loading lumber, ties, and wood on lighters.

(*b*) There is no physical connection with any railroad.

(*c*) A very poor unimproved wagon road leads to this wharf.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

NOMINI FERRY, VA.

(*a*) Nomini Ferry is located in Westmoreland County, Va., on the left bank of the Nomini Creek, about 6 miles above its mouth.

Its wharf is a pile structure of irregular shape. Its length over all is 102 feet, and its river face is 41 feet long. An open shed extends to the river face, and this is joined to a one-story frame warehouse 50 by 30 feet. A canning factory is located on one side of the wharf. A fish house, with small wharf, is located just below the main wharf. A bulkhead landing for loading lumber and wood is a short distance above the main wharf.

The Potomac & Chesapeake Co.'s steamers stop here regularly. The wharf receives about 500 dockages per year. About 2,000 passengers arrive and depart per year.

The incoming freight consists principally of fertilizer, merchandise, and farm implements, and will amount to about 15,000 pieces per year. The outgoing freight consists principally of canned tomatoes, farm produce, lumber, ties, and wood, in amounts as follows:

Lumber, 1,500,000 feet b. m. per year.
Ties, 10,000 per year.
Wood, 3,000 cords per year.
Miscellaneous, 15,000 pieces per year.

All loading and unloading is done by hand and with hand trucks over a gangplank.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charge for steamboat freight, 10 cents per cord of wood, and 10 cents per thousand feet of lumber.

(*b*) The nearest railroad is at Fredericksburg, Va., 60 miles distant.

(*c*) An unimproved wagon road leads to Montrose, Va.

(*e*) The main wharf is the property of the Nomini Packing & Manufacturing Co. The gross revenue derived from wharfage is about $600 per year. There is no person or firm regularly engaged in the transfer and delivery business in this vicinity.

MOUNT HOLLY, VA.

(*a*) Mount Holly is located in Westmoreland County, Va., on the right side of the Nomini Creek, about 6 miles above its mouth.

Its wharf is a wooden pile structure, rectangular in shape, 74 by 16 feet. There is a large shed, warehouse, and stock pen, and almost the entire wharf is roofed over. The wharf is in good condition. There is one small derrick on the wharf.

This wharf receives about 728 dockages per year, including vessels of all types and sizes. It is estimated that about 520 passengers arrive and depart each year.

The incoming freight consists principally of general merchandise, building material, and fertilizer, and will amount to about 22,500 pieces per year. The out shipments are composed largely of farm

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

products, fruit, stock, and poultry, and will amount to about 4,500 pieces per year.

All unloading and loading is done by hand or with hand trucks over a gangplank. The small derrick is used to hoist oysters and crabs from small boats.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charge.

(*b*) The nearest railroad is at Fredericksburg, Va., about 60 miles distant.

(*c*) An unimproved wagon road leads to Kinsale, Va.

(*e*) This wharf, with about 350 yards of water front, is owned and operated by Mr. F. J. Tubman. Its gross revenue is about $300 per year. No person or firm in this vicinity is regularly engaged in the transfer and delivery business.

DEEP POINT, VA.

(*a*) Deep Point is located in Westmoreland County, Va., on the left bank of the Nomini Creek, about 5½ miles above its mouth.

There are two wharves, the steamboat wharf and the cannery wharf. The steamboat wharf is a new pile structure, an irregular T in shape, with a wharf end 39 feet long and a pier 11 feet wide. Its length over all is 76 feet. A one-story frame warehouse, 20 by [illegible] feet, is on the wharf.

The cannery wharf is a very light T-shaped pile landing. Its piles are very small and there are only two per bent. It has a wharf end 16 by 9 feet and a pier 8 feet wide. Its length over all is 56 feet.

The steamboat wharf receives about 1,250 dockages per year, including vessels of all sizes and classes. It is estimated that 1,[illegible] passengers arrive and depart per year.

The incoming freight consists principally of merchandise, farm machinery, and fertilizer, and will amount to about 7,500 pieces per year.

The outgoing freight consists principally of chickens, eggs, fruit, and pork, and will amount to about 8,000 pieces per year.

Ten thousand empty cases are received per year at the cannery wharf, and about 10,000 full cases of canned tomatoes are shipped away.

All loading and unloading is done with hand trucks over a gangplank. The steamboat wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charge.

The use of the cannery wharf is confined to those carriers who are engaged in business with the canning company.

(*b*) The nearest railroad is at Fredericksburg, Va., about 60 miles distant.

(*c*) An unimproved wagon road leads from the wharf into the surrounding country.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways
(*e*) Ownership of water front.

(*e*) The steamboat wharf, with about one-half mile of water front, is owned and operated by Mr. J. B. Hall. Its gross revenue is about $250 per year.

MAGUIRES, VA.

(*a*) Maguires is located in Westmoreland County, Va., on the right bank of the Nomini Creek.

Its wharf is an irregular-shaped pile structure, in poor condition. Its length over all is 123 feet and its river face is 30 feet long. A long, slender, one-story warehouse 16 by 81 feet is on the wharf, and there is one small oyster derrick.

This wharf receives about 150 dockages per year, from the steamboats of the Potomac & Chesapeake Co. It is estimated that about 1,350 passengers arrive and depart each year.

The outgoing freight consists principally of oysters, eggs, poultry, and fruit, and will amount to about 3,400 pieces per year.

The incoming freight consists largely of store goods, merchandise, hay, and grain, and will amount to about 3,400 pieces per year.

All loading and unloading is done with hand trucks over a gangplank. This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charges.

(*b*) The nearest railroad is at Fredericksburg, Va., about 60 miles distant.

(*c*) An unimproved wagon road leads to Mount Holly, Va.

(*e*) This wharf, with about five-eighths of a mile of water front, is owned and operated by Mr. S. J. Hopkins. Its gross revenue is about $160 per year.

BEALE'S WHARF.

(*a*) Beale's Wharf is located in Westmoreland County, Va., on the right bank of the Nomini Creek.

Its wharf is a wooden-pile structure, in poor condition. It is irregular in shape. Its wharf end is 40 by 20 feet, its pier is 10 feet wide, and its length over all is 117 feet. There is an open shed and a wooden one-story warehouse 81 by 25 feet on the wharf. One small hand derrick is on the wharf, and a canning factory is located at its shore end.

This wharf receives about 300 dockages per year from steamboats alone, and it is estimated that 300 passengers arrive and depart per year.

The incoming freight consists largely of merchandise, farm implements, and fertilizer, and will amount to about 1,940 tons per year.

The outgoing freight consists principally of farm produce, oysters, fish, and canned goods, and will amount to about 2,780 tons per year. A considerable amount of ties and wood are shipped from shore nearby.

All loading and unloading is done with hand trucks over a gangplank.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charge.

(*b*) The nearest railroad is at Fredericksburg, Va., about 60 miles distant.

(*c*) An unimproved wagon road leads to Montrose, Va.

(*e*) This wharf, with about three-eighths of a mile of water front, is owned and operated by Mr. R. E. Beddoo. Its gross revenue is about $300 per year.

There is no person or firm engaged regularly in the transfer and delivery business in this vicinity.

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7. DYMERS CREEK, VA.

(*a*) Dymers Creek is a tidal estuary entering the Chesapeake Bay about 3 miles north of the mouth of the Rappahannock River.

The wharves of Dymers Creek are wooden-pile structures, generally in good condition. The Baltimore, Chesapeake & Atlantic Railway Co. operates a steamboat line between Ocran and Baltimore, Md. By far the greater part of the traffic of the creek is that connected with the two large fish factories located on its right bank. These two factories operate 9 steam vessels.

The wharves of Dymers Creek receive about 2,134 dockages per year. An average of about 350 passengers per year arrive and depart.

The outgoing shipments consist principally of fish, fish scrap, oil, and canned goods and will amount to about 9,182 tons per year.

The incoming freight consists largely of raw fish, coal, general merchandise, and brick and will amount to about 57,760 tons per year.

At the fish factories unloading of fish is done with bucket conveyors, which are dropped into the hold of the vessel and raise the fish to tanks within the factory buildings. All other loading and unloading is done by hand or with hand trucks over a gangplank.

Three out of five of the wharves on Dymers Creek are open to use by all water carriers on equal terms. Two of these are free, and at the third the charges for wharfage are 12 per cent of the transportation charge.

(*b*) The nearest railroad to Dymers Creek is at West Point, Va., about 40 miles distant and across two large rivers.

(*c*) The wharves of Dymers Creek are reached by unimproved wagon roads.

(*d*) The terminals of this creek are ample for the present traffic and for future traffic, so far as it can at present be foreseen.

(*e*) All five wharves on Dymers Creek are owned and operated by companies operating fish factories. There are no wharves owned or controlled by railway or steamboat companies.

Transfer and delivery is made by the patrons of the wharves.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

WHARTONS, VA.

(*a*) Whartons is located in Lancaster County, Va., on the right bank of Dymers Creek, about 1¼ miles above its mouth.

Its wharf is a wooden-pile structure in good condition. There is one small jib crane for lifting coal to wharf and one fish elevator.

This wharf receives about 600 dockages per year. The outgoing freight is as follows:

Fish scrap, 1,500 tons per year.
Oil, 800 barrels per year.

The incoming freight is as follows:

Raw fish, 185,000 bushels per year.
Coal, 1,600 tons per year.
Oil, 25 barrels per year.

One bucket conveyor elevates fish from hold of vessel to tanks in the factory building.

This wharf is closed to all water carriers except those engaged in business with the Wharton Fisheries Co.

(*b*) The nearest railroad is at West Point, Va., about 40 miles distant and across two large rivers.

(*c*) All the business of this wharf is transacted by water.

(*e*) The Wharton Wharf, with about 800 feet of water front, is owned and operated by the Wharton Fisheries Co.

OCRAN, VA.

(*a*) Ocran is located in Lancaster County, Va., on the right bank of Dymers Creek about 1 mile above its mouth.

It has four wharves. The steamboat wharf is a wooden-pile structure in good condition. It is irregular in shape, having a river face 52 feet long. There is one small oyster derrick on the wharf and a warehouse 38 by 25 feet on the shore just in rear.

The sawmill wharf is a wooden-pile structure in poor condition. It is a P in shape, having a wharf end 27 by 32 feet, a pier 7 feet wide, and a length over all of 216 feet. The decking is very light.

The fish factory wharf is a narrow wooden pile fringe around the edge of the factory. It is in fair condition. There are three so-called fish elevators on the wharf. The wharf is lighted with acetylene gas.

The canning factory wharf is a wooden pile structure almost entirely shedded over. It is 220 feet long, and has an extension 60 by 11 feet at one end.

The steamboat wharf receives about 234 dockages per year. It is estimated that 350 passengers arrive and depart per year.

The outgoing freight consists principally of fish, oysters, farm produce, and berries, to the value of about $16,000 per year.

The incoming freight consists largely of hardware and general merchandise, to the value of about $35,000 per year.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

This wharf is open to use by all water carriers on equal terms. Wharfage rates are 12 per cent of transportation charges, and 5 cents for each passenger.

The sawmill wharf receives about 150 dockages per year. About $2,000 worth of lumber and building material is shipped from this wharf per year, and about $6,000 worth of lumber is received.

This wharf is open to all water carriers on equal terms. Wharfage is free.

The fish factory wharf receives about 950 dockages per year. The outgoing freight is as follows:

Fish, 5,000 tons per year.
Oil, 7,000 barrels per year.

The incoming freight consists of fish, and will amount to 720,000 bushels per year.

This wharf is closed to all water carriers except those engaged in business with Bellows & Squires (Inc.).

The canning factory wharf receives about 200 dockages per year. The outgoing freight is as follows:

Canned herring roe, 2,500 cases per year.
Canned tomatoes, 5,700 cases per year.

The incoming freight is as follows:

Herring, 1,700 barrels per year.
Herring roe, 2,500 empty cases per year.
Tomatoes, 2,000 empty cases per year.
Empty cases and barrels, 9,900 per year.

This wharf is open to all water carriers on equal terms. Wharfage is free.

Loading and unloading is done by hand or with hand trucks except at the fish factory wharf. At the fish factory wharf, three bucket conveyors raise the fish from the holds of vessels and carry them to tanks within the factory building.

(*b*) The nearest railroad is at West Point, Va., 40 miles distant and across two large rivers.

(*c*) An unimproved wagon road leads to Whitestone post office, Va.

(*e*) All the wharves at Ocran are owned by Bellows & Squires (Inc.), who own about one-half mile of water front at this point. The gross revenue of the steamboat wharf is about $800 per year.

There is no person or firm in this vicinity regularly engaged in the transfer and delivery business.

Service of the most distant patron requires a haul of about 3 miles.

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8. YORK RIVER, VA.

The York River is formed at West Point, Va., by the confluence of the Mattaponi and Pamunkey Rivers, and it empties into Chesapeake Bay, 41 miles from West Point, and 20 miles from Fortress Monroe.

Excluding West Point, there are five ports and eight wharves on the York River. With the exception of Yorktown, all the regular shipping points are on the left bank of the stream.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

All wharves are pile structures, and the upper three, Allmondsville, Claybank, and Clements, are extended far into the stream by means of wooden pile piers, each nearly a half mile in length. The majority of these wharves are in good condition, that at Claybank, Va., exceptionally so. This is a new wharf with ample warehouse and waiting room facilities, electric lights, and a substantial industrial railroad track, upon which is operated a mule-drawn flat car.

There are 1,093 dockages per year on this river (not including those at West Point, Va.), not including launches and craft engaged in fishing and oystering. There are 29,720 passengers per year. The total amount of freight, per year, unloaded at the wharves of the York River, including those at West Point, is as follows:

284,200 bushels of oysters and crabs.
120,270 gallons of oil and gasoline.
1,300,000 feet of lumber.
150 cords of wood.
35,468 tons of miscellaneous freight.

The amount of freight shipped from the wharves, including those at West Point, Va., per year is as follows:

41,487 tons of miscellaneous freight.
68,995 barrels of oysters and crabs.
1,277,000 feet of lumber.
75 cords of wood.

Including the whole port of West Point, Va., as a part of the York River, there are three regular steamboat lines operating, besides a large number of sailing vessels, barges, scows, and rafts. Steamboat freight is loaded and unloaded with hand trucks. Sailing vessels, barges, scows, etc., are loaded by hand. Oysters, crabs, and fish are hoisted from small boats in half-bushel buckets by means of small hand hoists or cranes. None of the wharves is owned by the steamboat companies. One wharf at West Point and one at each of the following points, viz, Allmondsville, Claybank, Clements, and Yorktown, are owned by individuals or corporations and are open to use by all water carriers on equal terms. The wharfage rates are about as follows:

Passengers, 20 cents each.
Small packages, 3 to 5 cents.
Large packages, 50 to 75 cents.

(*b*) Physical connection between railroads and water terminals on the York River only exists at one point, which is the Southern Railway-Chesapeake steamship terminal at West Point, Va. Likewise, West Point is the only port at which there is a mutual contract for the interchange of freight between land and water carriers.

(*c*) There are no marginal streets, roads, or improved highways leading to any of the ports on the York River.

(*d*) No regular water terminals exist on the right bank of the York River above Yorktown. This is said to be due to the fact that the land is generally marshy and unsuited on that side, and that such inhabitants as do live there are generally small, colored farmers, who do very little receiving and shipping of freight.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

In addition to this there is a railroad parallel to the river on this side, which takes practically all of the traffic.

(*e*) Gloucester County, Va., controls the entire water front at Gloucester Point. From this probably the county derives a gross revenue of about $2,500 per year. All transferring and delivery along the York River outside of West Point is done by the patrons themselves or by persons hired and not in the regular transfer or delivery business.

WEST POINT, VA.

(*a*) West Point, Va., a town of 1,397 inhabitants according to the census of 1910, is located in King William County, Va., at the point where the Mattaponi and Pamunkey Rivers combine to form the York River.

There are seven wooden-pile wharves and one bulkhead landing. Also the beach along the undeveloped portion of the water front is utilized to unload small cargoes, principally fish. The only mechanical devices for loading or unloading are small jib cranes and oyster derricks. There are about 460 landings per week of vessels of all classes and sizes for the purpose of discharging and receiving cargoes. The receipts consist of 1,277,000 feet of lumber and logs per year, 246,700 bushels of oysters and crabs per year, 93,870 gallons of gasoline and oil per year, hay and corn to the value of $1,000 per year, and 27,400 tons of miscellaneous freight per year. The outgoing shipments consist of 32,958 tons of lime and crushed shell per year and 29,758 tons of miscellaneous freight, consisting principally of general merchandise and tobacco.

All steamboat freight is loaded and unloaded with hand trucks across gangplanks. The oysters are hoisted from small vessels by means of jib cranes and oyster derricks in steel buckets holding one-half bushel each. They are dumped into wooden wheelbarrows and wheeled away. Only one wharf, that of R. & J. L. Bland, at the foot of Fifth Street, on the Mattaponi River, is open to all water carriers on equal terms, subject to right of way granted to the vessels of the Standard Oil Co.

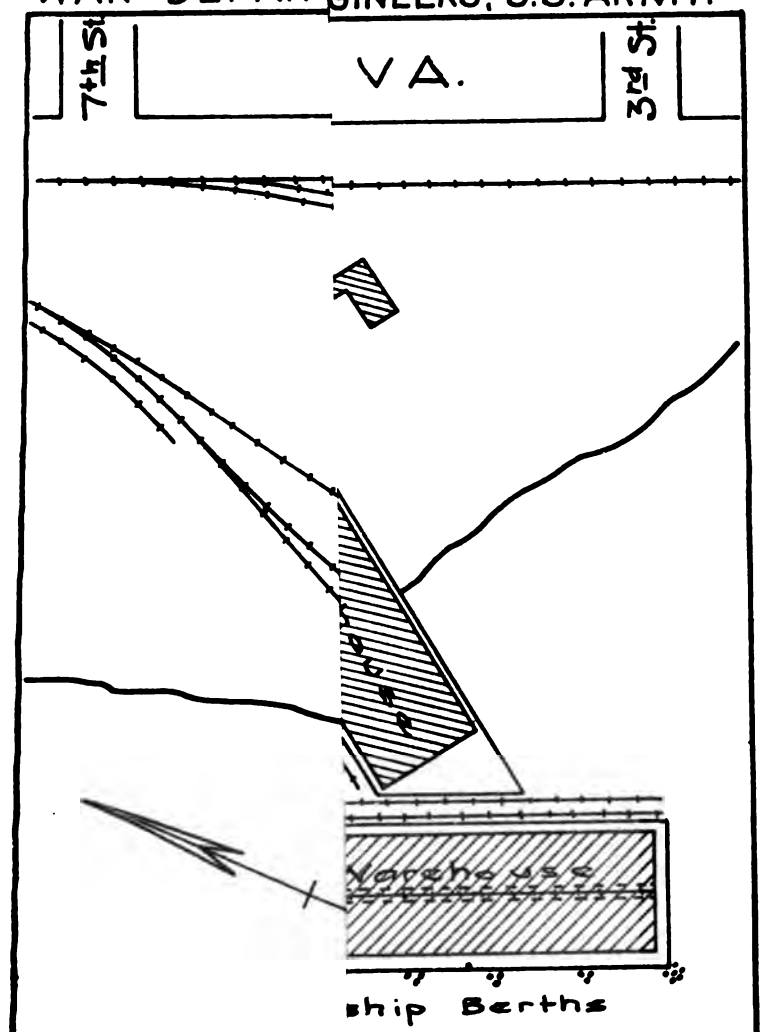
(*b*) Physical connection exists between the Southern Railway and the wharf terminal of the Chesapeake Steamship Co. and the Virginia Steam Navigation Co. Mutual contracts for the interchange of traffic exist between the Southern Railway and the Chesapeake Steamship Co., the Southern Railway and the Virginia Steam Navigation Co., and the Southern Railway and the Norfolk, York River & Tidewater Steamboat Co., and between the Norfolk, York River & Tidewater Steamboat Co. and the Virginia Steam Navigation Co.

(*c*) All terminals on the West Point water front are reached by the streets of the town. None of these is improved.

(*e*) The West Point water front extends for about 1¾ miles along the Pamunkey, York, and Mattaponi Rivers. That section on the York River lying south of First Street was set apart for and is used for hotel and public-park purposes. The hotel is said to belong to Mr. George Governator. In addition to this the town owns the

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

WAR DEPART GINEERS, U.S. ARMY.



PA POINT, VA.

WAY TERMINAL

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0 200 300

BER, 1912

THE BORRIES PETERS CO., WASHINGTON, D. C.

Doc. No. 226; 63d Cong., 1st Sess.

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street ends on the Mattaponi front. Practically the entire Pamunkey front, about 1 mile, is owned by the Southern Railway Co., and the southern end of this property is used as a terminal for the connection of the railway company with the Chesapeake Steamship Co. and the Virginia Steam Navigation Co. The railway also owns about 200 feet of undeveloped water front between Fourth and Fifth Streets on the Mattaponi River. Of the seven wharves, three and a portion of a fourth are used as receiving stations of oyster-packing establishments. The undeveloped portions of the Mattaponi River front, excepting that part owned by the Southern Railway Co., are owned by individuals, residents of the community, among whom are B. W. Edmonds, Charles Carlton, Mrs. W. J. Marshall, J. W. Marshall, J. T. Brown, and the Allmond estate.

There are 15 licensed expressmen in the town of West Point, each operating from one to three wagons. The cost of the license is $2.50 per year for each one-horse wagon and $5 per year for each two-horse wagon. The ordinary charge is 20 cents per load within the town limits. One-half cord of wood or one-half ton of coal, or the equivalent, is considered a load.

WEST POINT PANEL CO.

(*a*) This landing is located on the Mattaponi River at the foot of Eighth Street, West Point, Va. It is a solid-fill bulkhead wharf with a slip on one side. A part of the bulkhead is formed by rick of veneer cores, all laid as headers, a part of heavy logs laid horizontally, and a third part of sheet and ordinary piling.

One tug and one gasoline boat land here each day. In addition there are five dockages from lighters per week.

The receipts will average 25,000 feet of logs per week. The logs arrive by lighter, are picked up by a large, stiff-leg derrick on the wharf, and placed in a pile. At the proper time they are again raised by this derrick and swung to a saw, which cuts them to proper lengths. The hoisting engine is of 12 horsepower, and the boom is 54 feet long.

This wharf is used exclusively by the Veneer Co. in their business.

(*b*) There is no physical connection with any railroad and no contract for the interchange of traffic.

(*c*) The ordinary unimproved streets of West Point connect this landing with the business and residence sections of the town.

(*e*) This landing, with about 150 feet of water front, is owned by Martin Lane, of Wilmington, Del.

SMITHER'S WHARF.

(*a*) Smither's Wharf is located on the Mattaponi River at the foot of Seventh Street, West Point, Va. It is a pile wharf, in fair condition, rectangular in shape, setting at the outer end of a solid-fill bulkhead pier, the bulkhead being formed by heavy timbers laid horizontally. The piles are not braced. Two oyster derricks are on the wharf and an oyster-packing house on solid pier just in rear.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

The wharf receives two or three dockages per day. The incoming freight consists of oysters and will average about 100 bushels per day from October 1 to April 1. There are no outgoing shipments. The oysters are hoisted to the wharf in half-bushel buckets and wheeled away in wheelbarrows. This wharf is closed to all water carriers except Capt A. F. Smither and those engaged in business with him.

(*b*) There is no physical connection with any railroad, and no contract for the interchange of traffic.

(*c*) Seventh Street, unimproved, leads to the business and residence section of West Point.

(*e*) This wharf, with 50 feet of water front, is owned by Capt. A. F. Smither, and is used in the transaction of his business, which consists of oyster packing and towage. His floating plant consists of one small schooner, two gasoline launches, and two steam tugs.

WEST POINT OYSTER CO.

(*a*) The West Point Oyster Co.'s wharf is located on the Mattaponi River at the foot of Seventh Street, West Point, Va. It is a rectangular wooden structure, about 100 by 15 feet, in fair condition. Its piles are not connected with braces. There are three oyster derricks on the wharf, and a large canning factory just in the rear.

This wharf receives an average of 25 dockages per day, including fish and oyster boats of all sizes. The receipts are 30,000 bushels of oysters per season. There are no outgoing shipments from this wharf. The oysters are shoveled into a steel half-bushel bucket and hoisted by means of the oyster derricks to the wharf, where they are dumped into wheelbarrows and wheeled away. This wharf is closed to all water carriers except those transacting business with the West Point Oyster Co.

(*b*) There is no physical connection with any railroad and no contract for the interchange of traffic.

(*c*) Seventh Street, unimproved, leads from the wharf to the residence and business section of West Point.

(*e*) This wharf, with that including the part used by the Norfolk, York River & Tidewater Steamboat Co., is the property of the West Point Oyster Co. The ownership includes about 100 feet of water front.

YORK RIVER STEAMER LANDING.

(*a*) The York River steamer landing is the lower end of a pile wharf located on the Mattaponi River at the foot of Seventh Street, West Point, Va.

The wharf is a wooden-pile structure in fair condition.

It receives 10 dockages per week. It is estimated that 50 passengers per week arrive and depart on an average.

The incoming freight consists largely of merchandise and household goods and amounts to about 11 tons per month. The outgoing freight is principally merchandise, household goods, vegetables, and oysters, and will probably amount to 10 tons per month.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

All loading and unloading is done with hand trucks across a gangplank.

This landing is closed to all water carriers except the Norfolk, York River & Tidewater Steamboat Co.

(*b*) There is no physical connection with any railroad. The steamboat company has a contract with the Southern Railway Co. for the interchange of freight traffic, also one with the Virginia Steam Navigation Co. About 5 per cent of the total is through traffic in accordance with these contracts.

(*c*) See West Point Oyster Co. wharf above.

STANDARD OIL WHARF.

(*a*) The Standard Oil Wharf is located on the Mattaponi River at the foot of Fifth Street, West Point, Va.

It is a light pile structure, a reversed P in shape, and in fair condition. Its total length is about 340 feet, and its wharf end is about 45 by 25 feet, with the width of pier 12 feet. The piles are braced horizontally in one direction with 1 by 3 inch strips. A hand railing runs all the way around the wharf and there are two warehouses built alongside the pier. One small jib crane derrick is on the wharf.

This wharf receives about 10 dockages per day from vessels of all sizes and classes.

The incoming freight, not including a large amount of gasoline and oil landed by the Standard Oil Co., is 150 cords of wood per year, 27,000 feet of lumber per year, while the outgoing freight consists principally of hay, corn, etc., to a value of about $750 per year.

Loading and unloading is done by hand.

This wharf is open to all water carriers on equal terms.

(*b*) There is no physical connection with any railroad, and no contract for the interchange of freight.

(*c*) Fifth Street, unimproved, leads from the wharf to the residence and business portion of the town.

(*e*) This wharf, with about 50 feet of water front, belongs to R. & J. L. Bland. It is used by the owners in their mercantile business, also to a very slight extent as public wharf, and very largely by the Standard Oil Co. for the receipt and issue of gasoline and oil. The Standard Oil Co. pays to the owners $180 per year for their privileges on the wharf.

MARSHALL'S WHARF.

(*a*) Marshall's Wharf is located at the junction of the Mattaponi and York Rivers, at the foot of First Street in the town of West Point, Va.

It is a rectangular pile structure about 240 by 70 feet, in fair condition. A large two-story frame house occupies the greater part of the wharf, leaving a platform 10 feet wide all around. There are two oyster derricks on the wharf, and one hoisting engine, 16 horsepower.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

This wharf receives 10 dockages per day of large fish and oyster boats. The incoming freight is as follows:

Oysters, 175,000 bushels per year.
Crabs, 1,700 barrels per year.

The outgoing shipments are:

Lime, 2,500 tons per year.
Crushed shell, 700 tons per year.
Oysters, 50 tons per year.

Loading and unloading is done by hand and with the derrick engines mentioned above.

This wharf is closed to all water carriers except those engaged in business with Mr. J. W. Marshall, the owner of the wharf.

(*b*) There is no physical connection with any railroad.

(*c*) First Street leads to this wharf, but it is not improved.

(*e*) This wharf, together with 240 feet of water front on the Mattaponi and 450 feet on the York River, is the property of Mr. J. W. Marshall, and is used by him in the transaction of his business.

RICHARDSON'S FERRY.

(*a*) Richardson's Ferry is located at the Pamunkey end of Second Street, in the town of West Point, Va.

There is an old pile wharf, in very poor condition, with a wharf end about 30 by 75 feet, and an office and waiting room at the shore end of the pier.

One small jib-crane derrick is on the wharf, and steps lead down to a launch landing.

Mr. R. E. Richardson operates a ferry to Plum Point from this wharf and from a beach landing just above. He operates a gasoline launch for passengers and tows a freight boat when there is freight to cross. The ferry averages about 20 landings per day and averages 30 passengers per day. About 2½ tons of freight are hauled away from West Point each week and about one-half ton per week is brought in.

All loading and unloading is by hand.

This wharf and landing is closed to all water carriers except Mr. Richardson.

(*b*) The track of the Southern Railway is at the shore end of the pier of this wharf, but there is no connection between the two.

(*c*) B Street and Second Street lead from Richardson's Ferry to the business and residence section of West Point. Neither is improved.

(*e*) This wharf with about 50 feet of water front is owned by Mr. R. E. Richardson, and used by him in the transaction of his ferry business.

RICHARDSON'S WHARF.

(*a*) Richardson's Wharf is located in the town of West Point, Va., just below the Southern Railway terminal, at the junction of the York and Pamunkey Rivers.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

The wharf is a rectangular pile structure about 100 by 90 feet, in poor condition. An oyster packing house occupies the greater portion of the wharf, leaving a platform 8 feet wide on three sides. There are two oyster derricks on this platform. The wharf is connected to the shore by a solid oyster-shell fill mole.

There will average about 20 dockages at this wharf per week; 2,000 bushels of oysters, weighing about 100 tons, are received each week; 25,000 bushels of oyster shells are sent away by water per year.

The oyters are shoveled into metal half-bushel cans with perforated bottoms and hoisted by means of oyster derricks or by hand to this platform.

This wharf is closed to all water carriers except those supplying oysters to Dr. George Richardson. There are no wharfage charges.

(*b*) The Southern Railway has a track at the shore end of this pier, but there is no physical connection between the two.

(*c*) B Street leads to the town of West Point. It is not improved.

(*e*) This wharf, with about 150 feet of water front, is owned by Dr. George Richardson, oyster packer, and is used by Dr. Richardson in the transaction of his business.

SOUTHERN RAILWAY TERMINUS.

(*a*) The Southern Railway terminus is located on the left bank of the Pamunkey River very near to its mouth.

Its layout is shown by the accompanying sketch (printed). It consists of a mammoth warehouse of irregular shape, approximately 85 by 100 feet, following the shore line for the Pamunkey River, and another warehouse, rectangular in shape, 80 by 225 feet, set end on to the larger, with room enough between for two railroad tracks and large loading platforms. The buildings are built on piles, and the floors are extended outward on all sides and are used for wharves on the water side and for loading platforms on the land side. The grade of all tracks, except one, is lowered so as to bring the floor of an ordinary box car on a level with the loading platforms of the warehouses. The excepted track comes on a trestle to an angle of the main warehouse, and beneath the trestle is a large coal pile. Eight four tracks come to these two warehouses, and two more terminate in the yards between the two buildings. One track runs longitudinally through the wide section of the main warehouse and along the loading platform on the land side of the narrow portion of the same building. The large warehouse is used exclusively for through traffic between the railroad and steamship line, and the smaller one contains the offices, the West Point Railroad station, and a storage for local freight, both steamer and railroad. The wharf or landing part is in good condition with the exception of the fender piling. There are four large doors and ramps for passage between the steamboats and the large warehouse. Two of these have differential chain hocks running on a wooden frame for landing the large gangplanks of the boats. There is also one small jib-crane derrick on the wharf. This wharf forms the upper terminus of the Chesapeake

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Steamship Co. and the lower terminus of the Virginia Steam Navigation Co. There are 6 dockages per week. The freight receipts for the past year totaled 27,243 tons.

The outgoing freight consists largely of tobacco and general merchandise, and last year the outgoing shipments amounted to 29,513 tons.

All loading, unloading, and transferring between rail and water is done by hand or with hand trucks. Tracks are bridged, where necessary for the passage of freight or passengers, with wide, built-up removable planks, similar to light steamer gangplanks. This wharf is closed to all water carriers except the Chesapeake Steamship Co. and the Virginia Steam Navigation Co.

(*b*) Physical connection exists between this terminal and the Southern Railway, as shown by the above sketch (printed) and description. Both the Chesapeake Co. and the Virginia Co. have a mutual contract with the Southern Railway and with each other for the interchange of traffic. In the prorating of such long distance traffic as is carried partly by rail and partly by water, an extra allowance is given to the railway company to reimburse it for the cost of maintenance of the terminal. In accordance with the above contract, 85 per cent of the traffic through this terminal is through traffic. The Virginia Steam Navigation Co. also has a contract for the interchange of traffic with the Norfolk, York River & Tidewater Steamboat Co.

(*c*) Several streets of the town of West Point give access to the terminal. None of them are improved.

(*e*) This terminal, together with about 1 mile of water front on the Pamunkey River at this point, is owned by the Southern Railway Co.

ALLMONDSVILLE, VA.

(*a*) Allmondsville is located in Gloucester County, Va., on the left bank of the York River, about 15 miles below West Point.

Its wharf is a large pile structure shaped like the vertical projection of an old-fashioned locomotive smokestack. It is 2,034 feet long and is 140 feet wide at the extreme wharf end and 8 feet wide on the pier. Its piles are not connected by braces. It is well equipped with fender piling. The pier carries a steel track with a 40-inch gauge. There are six small sheds on the wharf end and four oyster derricks on the back face of the wharf end. A small jib crane is placed in the proper position to handle gangplanks of steamers. A large flat car 6 by 15 feet carries freight along a track on the pier to a large warehouse at the shore end. This wharf receives six steamboat dockages per week. The number of passengers arriving and departing will average 25 per week. The receipts in freight amount to about 42 tons per week and consist of merchandise. The outgoing shipments consist principally of farm products, stock, and potatoes and will average 50 tons per week. Loading and unloading is done with hand trucks over a gangplank. This wharf is open to use by all water carriers on equal terms. The wharfage rate is 20 cents per head for passengers, and varies from 5 cents for a box of yeast to [illegible] cents for a horse or farm implement.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*b*) The nearest railroad is at West Point, Va., 20 miles away by land.

(*c*) An unimproved wagon road leads to Sassafrass Post Office, Va.

(*e*) This wharf, together with about one-fourth mile of water front, is owned by Mrs. W. W. Allmond.

The gross revenue is about $1,650 per year, and the net revenue about $1,000 per year.

The service of the most distant patron requires a haul of 18 miles. There is no person or firm in the vicinity who conducts a transfer or delivery business.

CLAYBANK, VA.

(*a*) Claybank, Va., is located in Gloucester County, Va., on the left bank of the York River about 16 miles below West Point.

Its wharf is a new creosoted pile structure in good condition. It is T shaped, 1,255 feet long, with a wharf end 148 by 41 feet. Its piles are not connected by braces. The pier is 10 feet wide and is supported on pile bents of two vertical piles and cap each. A 16-pound steel track leads along the pier to shore, upon which a diminutive mule draws a flat car 6 by 12 feet. There is a large shed 138 by 33 feet on wharf, with its river side open. There are three oyster-hoisting frames and four oyster derricks on wharf. An independent plant with gasoline engine furnishes electric lights for the wharf and pier. The illumination is quite pleasing to night travelers upon the river. A neat handrail of 1½-inch galvanized iron pipe extends along one side of the pier. There are two attractive frame buildings on shore near the end of the pier. One of these is a warehouse and the other is the office and waiting rooms for the wharf. All loading and unloading between steamboats and wharf is done with hand trucks over a gangplank. Vessels are loaded by hand.

This wharf receives about 17 dockages per day, including launches and small boats. The principal articles of outgoing freight are oysters, clams, poultry, and lumber, in amounts as follows:

Oysters, 15,795 barrels per year.
Eggs, 1,092 crates per year.
Poultry, 593 coops per year.
Stock, 288 head per year.
Miscellaneous, 5,032 barrels and crates per year.
Peas, 1,000 barrels per year.
Miscellaneous, 1,170 packages per year.
Lumber, 1,300,000 feet per year.
Wood, 75 cords per year.

The freight receipts are principally general merchandise, farm implements, household goods, and provisions, and will average about 45 tons per week.

This wharf is open to use by all water carriers on equal terms. Wharfage on incoming freight is paid by consignee; that on outgoing freight is paid by consignee, collected through the carrier. Passenger-wharfage rate is 20 cents per head. Freight-wharfage rate is according to printed schedule and varies from 2 cents for a bucket of berries to 75 cents for a binder or a thousand brick.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*b*) The nearest railroad is 10 miles across the river at Williamsburg, Va.

(*c*) An unimproved wagon road leads from wharf into surrounding country.

(*e*) This wharf is owned by Mr. R. F. Weaver, Claybank, Va. Its gross revenue was, for last year, $2,704.17, and of this about $120 is net. There is no person or firm in this vicinity who is engaged in the transfer and delivery business. The service of the most distant patron requires a haul of 9 miles.

CLEMENTS, VA.

(*a*) Clements is located in Gloucester County, Va., on the left bank of the York River, about 20 miles below West Point. Its wharf is a wooden pile structure 2,342 feet long and presenting a face of 14[illegible] feet at its river end. There are two warehouses on the wharf end: one, 14 by 38 feet, is open on one side; the other is 25 by 12 feet. There is also a small stock pen. The pier is 10 feet wide and carries a 16-pound steel track, upon which a flat car, with platform 6 by 1[illegible] feet, is drawn by a small mule. The track and pier are in very poor condition.

The wharf is well equipped with fender piling. There are four small jib cranes for hoisting oysters; these consist of a vertical wooden mast, iron triangular frames, and wooden blocks.

This wharf receives 17 dockages per day, including launches and other small craft. It is estimated that an average of 10 passengers arrive and depart per day. The outgoing freight consists largely of oysters, clams, cantaloupes, and peas. There are 450 barrels of oysters per week shipped for nine months in the year. All other shipments will average 18 tons per week. The receipts are general merchandise and will average about 18 tons per week.

All loading and unloading is done with hand trucks over a gangplank.

This wharf is open to use by all water carriers on equal terms. The wharfage rates are per package, 3 cents for 50 pounds or less, [illegible] cents for more than 50 pounds. Guano and feed are 50 cents per ton. None for passengers. The consignee pays wharfage for incoming freight, and wharfage for out shipments is received from the carriers.

(*b*) The nearest railroad is 8 miles across the river at Lee Hall Station, Va.

(*c*) An unimproved wagon road leads to Wicomico Post Office, Va.

(*e*) This wharf, together with about one-fourth mile of water front, is owned by Dr. D. C. Clements, of Ordinary Post Office, Va. The gross revenue of the wharf is about $2,600 per year; the net revenue about $1,800 per year. Services of the most distant patron require a haul of 6 miles.

GLOUCESTER POINT, VA.

(*a*) Gloucester Point is located in Gloucester County, Va., on the left bank of the York River about 26 miles below West Point. It has three wharves and a beach ferry landing.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

The main wharf is set against shore. It is a pile structure in good condition, 162 by 58 feet. Its piles are not connected with braces. A large pavilionlike open shed, 140 by 29 feet, stands on center of wharf. A warehouse 99 by 18 feet is just in rear on the shore. This wharf is well equipped with fender piling. There are three oyster derricks on front face of wharf. The Baltimore and the Norfolk steamboats stop at this point regularly. There are 62 dockages and 25 passengers, on an average, each week. The outgoing shipments of freight consist principally of oysters and garden truck in amounts as follows:

Oysters, 20,000 barrels per year.
Garden truck, 25,000 pieces per year.
Miscellaneous, 100 tons per month.

The freight receipts are store goods and are estimated to average about 100 tons per month.

The ferry landing just below the main wharf is a plank approach, laid on sand beach. The ferry being a flatboat, towed by launch with 7-horsepower gasoline engine, plies between Gloucester and Yorktown. The ferry averages about 10 trips per day, with 10 passengers per day and 60 vehicles per year.

The gasoline wharf is a reversed P in shape. It is a light pile structure 236 feet long, a wharf end 48 by 37 feet, with a house 25 by 20 feet, and a pier 6 feet wide. The bents supporting the pier consist of two vertical piles and a cap. There is a small derrick on the wharf end.

There are about 15 dockages per day, including launches. An average of 2,200 gallons of gasoline are received each month.

The crab-factory wharf is just below the gasoline wharf. It is a pole wharf, very frail and light; is T shaped, 247 feet long over all, 27 feet wide at wharf end and 5 feet wide at pier. There is one crab derrick on wharf and a 28-inch-gauge track leading down the pier and into the crab factory on shore.

The receipts of this wharf consist of ice and crabs and in amounts as follows:

Ice, 3 tons per week in summer.
Crabs, 20 barrels per day for three months each year.

There are no out shipments from this wharf. Loading and unloading is done with hand trucks across a gangplank. The main wharf is open to use by all water carriers on equal terms. Wharfage rates are as follows:

Passengers, none.
Freight, about 50 cents per ton.

(*b*) The nearest railroad is at Lee Hall, Va., 8 miles across the river.

(*c*) An unimproved wagon road leads to Crab Post Office, Va.

(*e*) Gloucester County owns and operates the main wharf, together with 150 feet of water front. Its gross revenue is $2,500 per year, and the cost of operation and upkeep is $1,000 per year. Service of the most distant patrons of this wharf requires a haul of 6

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

miles. No person or firm in this vicinity is engaged in the transfer and delivery business.

Mr. M. C. Richardson owns the State franchise for the ferry and looks after its operation. The floating plant is owned by Mrs. L. H. Ash and is rented to Mr. Richardson for $5 per week. The rates on this ferry are 25 cents per passenger one way, 35 cents round trip, or 25 cents round trip, each, for a party of five or more, returning same day. Horses are charged for at 25 cents per head and vehicles at 25 cents per wheel, with slight reductions for combinations.

Mr. M. C. Richardson owns the gasoline wharf, which is located on a portion of a quarter of a mile stretch of water front owned by the county. No money rental is paid by Mr. Richardson, and his agreement requires that he shall remove his wharf at any time that the county may require the water front for railroad purposes.

The crab factory wharf is owned by Haslinger & Anderton, Gloucester Point, Va., and is also located on the county land. It is said that the amount of lease paid by Haslinger & Anderton to the county is $25 per year.

YORKTOWN, VA.

(*a*) Yorktown is located in York County, Va., on the right bank of the York River, about 27 miles below West Point. It has two wharves.

The steamboat wharf is a substantial pile structure set against shore, 210 by 36 feet. Its piles are creosoted, but not connected together with bracing. A large pavilion-like open shed, 101 by 4[illegible] feet, stands on the wharf, and a building 80 by 20 feet, used for a warehouse, waiting room, and office, is just in the rear. Industrial steel track leads from the wharf to a large factory building about 100 yards away. There are three oyster derricks on the wharf.

The cement wharf is a very substantial creosoted pile rectangular pier, with fender piling for inshore landings. A heavy industrial steel track, 30-inch gauge, leads along the pier and to skeleton of factory building. This pier is 425 feet long and 40 feet wide. In January, 1912, during a fog, the Baltimore steamer ran into and through this pier near its outer end, cleanly cutting it in two. It has never been repaired.

The steamboat wharf receives an average of eight dockages per day, and it is estimated that 11 is the average number of passengers who arrive and depart in one week. Incoming freight consists of furniture, hay, grain, and store goods, and will average about [illegible] tons per week. The outgoing freight consists of oysters, fish, crabs, garden truck, etc., and will average about 10 tons per week. The cement wharf has not yet been used, but it is intended to ship lumber in the near future.

Loading and unloading at the steamer wharf is done with hand trucks over a gangplank. The steamer wharf is open to use of all carriers on equal terms. The wharfage rate is said to be 3 cents per package.

(*b*) The nearest railroad is at Lee Hall, Va., 7 miles away.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.

(*c*) An unimproved wagon road leads to the town of Yorktown, thence to Harris Grove post office.

(*e*) The steamer wharf, with about three-eighths of a mile of water front, is owned by the Peninsular Land Co., who also own, through purchase from the town trustees, about 3 miles of water front above Yorktown. The Jamestown Portland Cement Co. owns the cement wharf and about 1 mile of water front, purchased from individuals.

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9. MATTAPONI RIVER, VA.

(*a*) The Mattaponi River rises in Virginia, flows in a southeast-erly direction for about 120 miles, and empties into the York River at West Point, Va.

Not including West Point, the Mattaponi River has about 28 ports, each with one or more wharves or landings. The wharves are gen-erally pile or crib structures in very poor condition. Many of the shipping points are shore landings, and others are rude piles of drift or logs almost buried under an accumulation of bark and rotten timber.

The ports of the Mattaponi River receive about 7,490 dockages per year. About 2,544 passengers per year arrive and depart.

The outgoing shipments consist principally of wood, lumber, ties, and poultry, and will amount to about 107,507 tons per year. The incoming freight consists largely of hay, merchandise, fertilizer, and lumber, and will amount to about 37,977 tons per year.

Loading and unloading is done by hand, with hand trucks, and with large skeleton wheelbarrows.

There are 20 wharves or landings on the Mattaponi River that are open to use by all water carriers on equal terms. Wharfage rates are as follows:

Wood, 5 to 10 cents per cord.
Lumber, 5 to 10 cents per thousand feet.
Ties, one-half to three-fourths cent each.
Fertilizer, 10 cents per ton.

(*b*) The West Point branch of the Southern Railway passes down the peninsula between the Mattaponi and Pamunkey Rivers. It varies in distance from the Mattaponi from 18 miles at Aylett to one-fourth mile at West Point. There is no physical connection between the river and the railroad, and no contract for the interchange of traffic.

(*c*) All of the highways leading to the wharves or landings are unimproved and many of them are in poor condition.

(*d*) Almost all the landings of the Mattaponi River should be rebuilt. There should be established near Walkerton, and below the Walkerton Bridge, a large wharf and storage yard for the large quantity of wood, lumber, and ties which are brought to this vicinity from upriver in lighters and transferred to barges and sailing vessels.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

(*e*) The greater part of the terminals of the Mattaponi River are privately owned and controlled by their owners. County ownership of water-front land is common, but in many places the artificial landing on these county frontages is owned by some other person or corporation.

The Virginia Steam Navigation Co. owns outright about three wharves and controls by lease about two more.

Almost all land tranfer and delivery is made by the patrons of the wharves with their own teams. Freight is regularly hauled by land for distances up to 15 miles.

AYLETT, VA.

(*a*) Aylett is located in King William County, Va., on the right bank of the Mattaponi River, about 39 miles above West Point.

Its wharf is a very dilapidated pile structure. There is a one-story frame warehouse alongside the wharf, and a shore landing, with a large lumber, tie, and wood yard, just below.

This wharf and landing receive about 520 dockages per year; about 520 passengers per year arrive and depart.

The outgoing freight consists principally of lumber, ties, wood, and grain in amounts as follows:

Lumber, 90,000 feet per year.
Ties, 15,000 per year.
Wood, 500 cords per year.
Miscellaneous, 5,200 pieces per year.

All loading or unloading is done by hand, with hand trucks or with large wheelbarrows.

The wharf at Aylett is closed to all water carriers except the Virginia Steam Navigation Co.

The nearest railroad is at Lestor Manor, Va., about 18 miles distant.

(*c*) An unimproved wagon road leads to Hanover, Va.

(*e*) The wharf at Aylett is owned by the Virginia Steam Navigation Co., upon 480 feet of water frontage owned by King William County. The shore landing is located partly on the land of the county; also upon 150 feet of front belonging to J. W. Cridlin and upon 350 feet of front owned by the J. A. Cridlin estate. There is no person or firm in this vicinity regularly engaged in the transfer and delivery business. Service of the most distant patron requires a haul of about 12 miles.

JONES'S LANDING, VA.

(*a*) Jones's Landing is located in King and Queen County, Va., on the left bank of the Mattaponi River, about 37 miles above West Point.

Its wharf is a small dilapidated pile structure carrying a warehouse without doors, which appears to be just ready to slide into the river. A wood and lumber shore landing stretches about 700 feet downstream from the wharf.

(*a*) General location and description.
(*c*) Connection with highways.
(*e*) Ownership of water front.

The wharf and landing receive about 676 dockages per year. About 1,800,000 feet of lumber and 200 cords of wood per year are shipped away.

The shore landing is open to use by all water carriers on equal terms; wharfage rates are 5 cents per 1,000 feet of lumber and 5 cents per cord of wood. All loading and unloading is done by hand.

(*b*) The nearest railroad is at Lestor Manor, Va., about 20 miles distant.

(*c*) A very poor unimproved wagon road leads to St. Stephens, Va.

(*e*) Jones's Landing, with about one-half mile of water front, is owned by William Wilson.

POPLAR LANDING, VA.

(*a*) Poplar Landing is located in King William County, Va., on the right bank of the Mattaponi River, about 36 miles above West Point. This is a shore landing. Wood, lumber, and ties are shipped away, and there are no receipts. Loading is done by hand and with wheelbarrows.

This landing is open to use by all water carriers on equal terms.

(*b*) The nearest railroad is at Lestor Manor, Va., about 18 miles distant.

(*c*) An unimproved wagon road leads to Aylett Mill.

(*e*) This landing, with about 2½ miles of water front, is owned by Mr. E. B. Kelly, and is rented to W. D. Ronsey for $50 per year. Service of the most distant patron requires a haul of about 6 miles.

POYNTER'S LANDING, VA.

(*a*) Poynter's Landing is located in King William County, Va., on the right bank of the Mattaponi River, about 34 miles above West Point.

The landing consists of a grounded scow and a pile of lumber.

This landing receives about 48 dockages per year. Wood and lumber are shipped away; there are no receipts.

(*b*) The nearest railroad is at Hanover Court House, about 13 miles distant.

(*c*) An unimproved wagon road leads toward Richmond, Va.

ROANE WHARF, VA.

(*a*) Roane Wharf is located in King William County, Va., on the right bank of the Mattaponi River, about 33 miles above West Point.

Its wharf is a wooden structure which has fallen down. There are no warehouse facilities. The steamboat stops to accommodate small amount of traffic.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

FOX'S LANDING.

(*a*) Fox's Landing is located in King and Queen County, Va., on the left bank of the Mattaponi River, about 29½ miles above West Point. Its landing is an open-crib structure on the end of a marsh a little above Walkerton.

About 4,000,000 feet of lumber are received annually at this landing from up river, and is then shipped by barge or vessel down the river.

WHITE BANK, VA.

(*a*) White Bank is located in King William County, Va., on the right bank of the Mattaponi River, about 29 miles above West Point.

The landing is formed of logs and rude cribs.

This landing receives about 156 dockages per year. The outgoing freight is as follows:

Lumber, 6,500,000 feet per year.
Wood, 300 cords per year.

The incoming freight consists of 6,500,000 feet of lumber per year.

All loading and unloading is done by hand.

The White Bank Landing is open to use by all water carriers on equal terms. Wharfage rates are 5 cents per cord of wood and 5 cents per 1,000 feet of lumber.

(*b*) The nearest railroad is at Lestor Manor, Va., about 12 miles distant.

(*c*) An unimproved wagon road leads to King William Court House, Va.

(*e*) This landing, with about 1,200 feet of water front, is owned and operated by S. P. Gatewood. There is no person or firm in the vicinity regularly engaged in the transfer or delivery business. Service of the most distant patron requires a haul of about 3 miles.

ENFIELD, VA.

(*a*) Enfield is located in King William County, Va., on the right bank of the Mattaponi River, about 29 miles above West Point. The landing consists of several disconnected piles of logs and crib-like structures.

This landing receives about 15 dockages per year. About [illegible] cords of wood per year and 900,000 feet of lumber are shipped away. There are no receipts.

This landing is open to use by all water carriers on equal terms. Wharfage rates are 5 cents per cord on wood and 5 cents per thousand feet on lumber.

(*b*) The nearest railroad is at Lestor Manor, Va., about 12 miles distant.

(*c*) An unimproved wagon road leads to Lestor Manor, Va.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*e*) The Enfield Landing, with about 1¼ miles of water front, is ›wned by the Cook estate, and is rented to Mr. J. R. Parker. All rood shipped is hauled to the wharf overland in wagons, while all umber arrives from upriver in lighters and is piled at this landing ›ending reshipment.

WALKERTON, VA.

(*a*) Walkerton is located in King and Queen County, Va., on the ›ft bank of the Mattaponi River, about 29 miles above West Point. t has three wharves. The canning factory wharf is a wooden pile tructure in good condition. It is irregular in shape. Its river face › 31 feet long, its pier is 9 feet wide, and its length over all is 439 eet. The entire wharf end is shedded over. A steel industrial ›ack, 18-inch gauge, passes along the pier to the canning factory on ›ore. There is an open coal and crate bin near the end of the wharf.

This wharf receives about 208 dockages per year. About 10,000 ›ses per year are shipped away from this wharf. All loading and nloading is done by hand.

The canning factory wharf is closed to all water carriers except ›ose engaged in the transaction of business with the Stansbury Can- ›ng Co. (Inc.).

The steamboat wharf is a wooden pile structure in very poor con- tion. It is a T in shape, with a wharf end 86 by 16 feet, a pier 8 ›et wide, and length over all of 406 feet. A warehouse 36 by 22 feet built in one angle of the T. A small flat car runs along the pier › a track formed of wooden rails capped with strap iron and laid 28-inch gauge.

This wharf receives about 2,600 dockages per year, including small ›ats. About 520 passengers per year arrive and depart.

The outgoing freight consists principally of poultry, walnuts, des, and calves, and will amount to about 5,720 packages per year. he incoming freight consists largely of hay, corn, dry goods, and eat, and will amount to about 1,300 tons per year. All loading and ›loading is done with hand trucks across a gangplank.

This wharf is closed to all water carriers except the Virginia eam Navigation Co.

The pickle factory wharf is a pile structure in fair condition. It a T in shape, having a wharf end 31 by 22 feet, a pier 9 feet wide, d a length over all of 196 feet. The piles are not braced. An in- ›strial track runs along the pier, connecting the wharf end with the ›kle factory.

This wharf receives about 24 dockages per year. About 800 bar- ›s of pickles per year are shipped from this wharf.

The incoming freight is as follows:

Empty barrels, 800 per year.
Salt, 200 sacks per year.
Cucumbers, 200 barrels per year.

This wharf is closed to all water carriers except those engaged in › transaction of business with the Mattaponi Pickling Co.

The Pea Vine Landing is an open pile structure without decking. ›is landing receives about 36 dockages per year. About 3,600,000 ›t of lumber are received per year, and an equal amount is shipped.

(*a*) General location and description.
(*e*) Ownership of water front.

This landing is used only as a temporary storage place for the transfer of lumber from lighters to barges or sailing vessels.

(*b*) The nearest railroad is at Lestor Manor, Va., about 13 miles distant.

(*c*) An unimproved wagon road leads to Tappahannock, Va.

(*e*) The steamboat wharf is owned by the Virginia Steam Navigation Co. The canning factory wharf is owned by the Stansbury Canning Co. (Inc.), and the pickle wharf is owned by the Mattaponi Pickling Co., upon about 100 feet of water frontage leased from the Walkerton & Mattaponi Bridge Co.

There is no person or firm in this vicinity regularly engaged in the transfer or delivery business. Service of the most distant patron requires a haul of 12 miles.

LOCUST GROVE, VA.

(*a*) Locust Grove is located in King and Queen County, Va., on the left bank of the Mattaponi River, about 28 miles above West Point.

Its wharf consists of two rows of piles, about 200 feet long, parallel to the shore line, capped with 8 by 8 inch skids. Lumber is stacked on these skids. There are three lumber chutes to bring lumber to landing from high bluffs above.

This landing receives about 60 dockages per year.

This landing is open to use by all water carriers on equal terms.

(*b*) The nearest railroad is at Lestor Manor, Va., about 14 miles distant.

(*c*) An unimproved wagon road leads to Walkerton, Va.

(*e*) This landing is owned by Henley Walker. There is no person or firm in this vicinity regularly engaged in the transfer or delivery business. Service of the most distant patron requires a haul of about 6 miles.

SHACKLEFOOT LANDING.

(*a*) Shacklefoot Landing is located in King and Queen County, Va., on the left bank of the Mattaponi River about 28 miles above West Point. The landing is a log crib structure. A chute, made by placing poles in contact, leads up to the bank.

This landing receives about 312 dockages per year, and about [illegible] cords of wood per year are shipped away.

All loading and unloading is done by hand.

This landing is open to use by all water carriers on equal terms. There are no wharfage charges.

(*b*) The nearest railroad is at Lestor Manor, Va., about 14 miles distant.

(*c*) An unimproved wagon road leads to Walkerton, Va.

(*e*) This landing, with about 1½ miles of water front, is owned by Theodore Shacklefoot. Service of the most distant patron requires a haul of about 4 miles.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

HORSE LANDING.

(*a*) Horse Landing is located in King William County, Va., on the right bank of the Mattaponi River, about 27 miles above West Point.

The landing consists of four open log cribs 7 feet square, with 2 by 12 inch planks laid across.

This landing receives about one dockage per year. About 150 cords of wood per year are shipped away.

Loading is done with wheelbarrows.

This landing is open to use by all water carriers on equal terms. Wharfage rates are 5 cents per cord of wood and one-half cent per railroad tie.

(*b*) The nearest railroad is at Lestor Manor, about 11 miles distant.

(*c*) An unimproved wagon road leads to King William Court House, Va.

(*e*) Horse Landing, with about 600 feet of water front, is owned and operated by Thomas Williams. There is no person or firm in this vicinity regularly engaged in the transfer or delivery business.

HILLSBORRO LANDING, VA.

(*a*) Hillsborro Landing is located in King and Queen County, Va., on the left bank of the Mattaponi River, almost 26 miles above West Point. The landing consists of two large rough cribs with a few planks laid to form a floor. The shore end meets a wood chute made by laying ties longitudinally up the steep slope. A wooden lumber chute of the usual pattern is alongside the wharf.

This landing receives, on an average, one dockage per month, consisting of vessels or barges.

The outgoing shipments are about 700 cords of wood and 125,000 feet of lumber per year. There are no receipts.

All loading is done by hand and with large wheelbarrows.

This landing is open to use by all water carriers on equal terms. The wharfage rates are 6 cents per thousand feet of lumber, one-half cent each per tie, and 6 cents per cord of wood.

(*b*) The nearest railroad is at Lestor Manor, Va., 15 miles distant.

(*c*) A private unimproved road leads to the main Walkerton road.

(*e*) This landing, together with about seven-eighths of a mile of water front, is owned and operated by Mr. W. T. Henley. The steamboat does not stop here. There is no one in this vicinity who is engaged exclusively in the transfer and delivery business. The service of the most distant patron requires a haul of 6 miles.

WHITE OAK LANDING.

(*a*) White Oak Landing is located in King William County, Va., on the right bank of the Mattaponi River, about 24¼ miles above West Point. It is a pile structure in good condition. The wharf is T

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

shaped, with a wharf end 32 by 19 feet; the pier is 9 feet wide. The piles are very light and placed far apart. There is a small warehouse 16 by 18 feet, without doors, on the wharf end of the landing.

This wharf receives six dockages per week, and an average of 1 passengers per week arrive and depart.

The incoming freight consists of 50 tons of lime per year, about 50 tons of merchandise and hay per year. The outgoing freight will amount to about 100 tons per year, consisting of hay, grain, and fish.

All loading and unloading is done with hand trucks across a gang plank. This wharf is closed to the use of all water carriers except the Virginia Steam Navigation Co.

(*b*) The nearest railroad is at Lestor Manor, Va., 12 miles distant.

(*c*) An unimproved wagon road leads to King William Court-house.

(*e*) This landing, with 2,376 feet of water front, is owned by Mr. B. C. Garrett. It is leased to the Virginia Steam Navigation Co. on a 20-year lease. The price specified as the consideration in the lease is said to be $12 per year.

Each patron delivers his own freight. A haul of 7 miles is required for the most distant of these patrons.

SCOTLAND LANDING, VA.

(*a*) Scotland Landing is located in King William County, Va., on the right bank of the Mattaponi River, about 24 miles above West Point. The landing consists of a rotten crib work of logs covered to a depth of about 6 feet with rotten timber and bark. The bank above the landing is gouged out to form a chute for ties and wood. A lumber chute of the ordinary pattern is located just above the crib. This landing receives 25 dockages per year.

The outgoing shipments are as follows:

Lumber, 1,500,000 feet per year.
Wood, 500 cords per year.
Ties, 3,000 per year.

There are no receipts. Wood and ties are loaded by wheelbarrows. Lumber is loaded by hand, in connection with the lumber chute.

This wharf is open to use by all water carriers on equal terms. Wharfage rates are 5 cents per cord of wood, 5 cents per thousand feet of lumber, and one-half cent per tie.

(*b*) The nearest railroad is 12 miles from this wharf, at Lestor Manor, Va.

(*c*) An unimproved wagon road leads to King William Court-house, Va.

(*e*) This landing, with about 1,200 feet of water front, is owned and operated by Mr. H. I. Lewis. A haul of 7 miles is required to serve the most distant patron. About 50 per cent of the transfer and delivery is done by the patrons of the wharf with their own teams; the other 50 per cent is hired out to small farmers, principally at times when farm work is slack.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

YEW GROVE, VA.

(*a*) Yew Grove is located in King William County, Va., on the right bank of the Mattaponi River, about 23 miles above West Point. Its wharf, or landing, is an open crib connected to shore by a frail trestle. There are shipped from this landing 150,000 feet of lumber per year, 300 cords of wood per year, 500 ties per year, and 100,000 feet of veneering logs per year. There are no receipts. Loading and unloading is done by hand and with wheelbarrows.

This wharf is open to use by all water carriers on equal terms. The wharfage rates are 5 cents per cord of wood, 5 cents per thousand feet of lumber, and one-half cent per tie.

(*b*) The nearest railroad is 13 miles distant.

(*c*) An unimproved wagon road leads to the wharf.

(*e*) This landing, with about three-fourths of a mile of water front, is owned by Nelson Butler. A haul of 4 miles is required to serve the most distant patron.

SANDY POINT, VA.

(*a*) Sandy Point, Va., is located in King William County, Va., on the right bank of the Mattaponi River, about 22½ miles above West Point. Its wharf is a low platform in poor condition, resting on log cribs. It is rectangular in shape, 18 by 70 feet, and carries a track formed by 4 by 6 inch wooden timbers, at a gauge of 30 inches, upon which a flat car is operated. Steamboats do not land at this wharf. There are three dockages per year.

There are no receipts, and the outgoing shipments consist of 100,000 feet of lumber and 50 cords of wood per year.

Loading and unloading is done by hand, in connection with a flat car, mentioned above.

This wharf is open to use by all water carriers on equal terms. The wharfage rates are 5 cents per cord of wood and 5 cents per thousand feet of lumber.

(*b*) The nearest railroad is at Sweet Hall, Va., 9 miles distant.

(*c*) An unimproved wagon road leads to King William Courthouse, Va.

(*e*) This wharf, with about 4 miles of water front, is owned and operated by Mr. John S. De Farges. The service of the most distant patron requires a haul of 4 miles.

MANTAPIKE, VA.

(*a*) Mantapike is located in King and Queen County, Va., on the left bank of the Mattaponi River, about 22 miles above West Point. It has three wharves.

The canning factory wharf is a combination crib and pile dock, jutting out from the warehouse. It receives about 55 dockages per year. About 9,000 cases of empty cans per year are received, and 9,000 cases of full cans, principally tomatoes, are shipped. All loading and unloading is done by hand.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

This wharf is closed to all water carriers except those transacting business with the canning factory.

The middle wharf is a rectangular pile structure, 26 by 32 feet. Some of the piles are sawed posts. None of them are braced. It is in fair condition. This wharf receives two dockages per month. The freight receipts are about 40 tons of fertilizer and 3 carloads of hay per year. The outgoing shipments are as follows:

Lumber, 1,500,000 feet per year.
Wood, 1,000 cords per year.
Ties, 8,000 per year.

The ties and wood are loaded with wood wheelbarrows and lumber by hand.

This wharf is open to use by all water carriers on equal terms. Wharfage rates are as follows:

Fertilizer, 10 cents per ton.
Hay, nothing.
Lumber, 7 cents per thousand.
Wood, 7 cents per cord.
Ties, one-half cent each.

The steamboat wharf is a pile structure of the usual pattern. It is a T in shape, its wharf end being 33 feet wide; the platform space of the pier is 21 feet wide; length over all, 68 feet. A warehouse 12 by 46 feet stands upon the pier. The entire surface of this wharf is ramped down toward the outer end to such an extent that the end is usually beneath the surface of the water. The door to the warehouse is left open. This wharf receives six dockages per week from steamboats. The number of passengers to arrive and depart per week will average six. The incoming freight consists of fertilizer, grain, hay, and merchandise and will amount to two carloads per month. The outgoing freight consists of one-half carload per month of poultry, eggs, calves, sheep, etc. All loading and unloading is done with hand trucks over a gangplank.

This wharf is used exclusively by the Virginia Steam Navigation Co.

(*b*) The nearest railroad is at Sweet Hall, Va., 12 miles distant.

(*c*) An unimproved wagon road leads from the wharf to Walkerton, Va.

(*e*) The canning-factory wharf belongs to the Mantapike Canning Co., upon land belonging to Mr. R. W. Turner, who owns about one-half mile of water front at this point.

The middle wharf is owned and operated by Mr. B. W. Turner.

The steamboat wharf is owned by the Virginia Steam Navigation Co. upon 1 acre of ground belonging to the county, having been condemned for a public landing. No one is in charge of this wharf. Freight is unloaded and left in an open shed until the consignees come and get it.

Milton Braxton is engaged in the transfer and delivery business. His charges are from 40 to 50 cents per load on an ox cart. For the service of the most distant patron of the Mantapike terminal a haul of 6 miles is required.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

FRAZIER'S FERRY.

(*a*) Frazier's Ferry is located in King William County, Va., on the right bank of the Mattaponi River, about 18 miles above West Point.

The steamboat landing is a pile and crib wharf, in poor condition. The piles are not braced. The wharf is in shape a T, with a wharf end 25 by 28 feet, a pier 9 feet wide, and a total length over all of 102 feet. A 12 by 16 foot warehouse is alongside the pier near the shore. This wharf receives an average of six dockages per week. An average of two passengers per week arrive and depart at this wharf. The incoming freight consists principally of store goods and hay to the value of $15,000 per year. There is shipped out about 750 bushels of wheat per year, 5,000 ties per year, 1,000 cords of wood per year, and 100,000 feet of lumber per year. Steamboat freight is loaded and unloaded with hand trucks. Barges get within 10 or 15 feet of the end of the wharf, make fast to shore, and bridge over to the wharf by two long pole balks and plank flooring. The wood and ties are run over this bridge in wood wheelbarrows. This wharf is open to use by all water carriers. No wharfage is charged the steamboat company. For others the wharfage rate is one-half cent each for ties, 5 cents per cord of wood, and 5 cents per thousand feet of lumber.

The pickle-factory wharf is a pile T-shaped structure with a wharf end 55 by 66 feet, a pier 9 feet wide, and a length over all of 291 feet. The trestle bents on pier are of two vertical piles and a cap each. None of the piles are braced. Two parallel lines of skids are laid on the wharf in a sort of track, over which the pickle barrels, both empty and full, are rolled. This wharf receives an average of two dockages per month. The incoming freight consists of 350 empty barrels per year and 100 sacks of salt. The outgoing freight is 350 barrels of pickles per year. Above the pickle-factory wharf is a wooden lumber chute with a very light landing at its outer end. This landing receives one dockage per month, and there are shipped therefrom 1,000,000 feet of lumber per year. The pickle-factory wharf is confined to the uses of the pickle factory. The lumber landing is confined to the use of Mr. J. F. Cobb.

(*b*) The nearest railroad is at Sweet Hall, Va., 8 miles distant.

(*c*) A public unimproved wagon road leads to King William Courthouse.

(*e*) Mr. W. P. Bray owns the steamboat wharf and lumber landing, together with about 2 miles of water front. Mr. Bray operates the steamboat wharf himself, but rents the lumber landing to Mr. J. F. Cobb for the shipment of lumber.

The pickle-factory wharf, together with about 20 feet of water front, is the property of Mr. Harry Barden, 3237 Oregon Street, Philadelphia, Pa. The services of the most distant patrons of these wharves requires a haul of 5 miles.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

COURTHOUSE LANDING.

(*a*) Courthouse Landing is located in King and Queen County, Va., on the left bank of the Mattaponi River about 17 miles above Westpoint, Va. It has three landings. The upper landing consists of log cribs supporting a wooden platform and a lumber chute leading from the top of the bluff above. This landing has about seven dockages per year, and about 1,000,000 feet of lumber per year is shipped away. Lumber is loaded by hand in connection with the lumber chute mentioned above. This landing is open to use by all water carriers on equal terms. Only lumber is shipped and the wharfage rate is 5 cents per thousand feet.

The wharf of the steamboat pier is a bulkhead pier, the bulkhead being formed by horizontal logs. It is solid fill, except the outer edge, which is floored with plank. The fender piling is in poor condition. There is a warehouse on the downstream edge of the pier. There are seven dockages per week, and it is estimated that on an average six passengers arrive and depart per week. The incoming freight consists principally of hay, grain, meat, and merchandise, and will average about 3½ tons per week. The outgoing freight consists principally of lumber, ties, wood, and calves. About 1 ton per week is shipped by steamboat; 2,500,000 feet b. m. of lumber is shipped per year; also 250 cords of wood and 1,000 ties. This wharf is open to use by all water carriers. No wharfage is charged to the steamboat company. For others the wharfage rate is 5 cents per cord of wood, 5 cents per thousand feet of lumber, and one-half cent each for ties.

The canning factory wharf is a small platform porch extending from the canning factory building and supported on piles. Its dimensions are 16 by 25 feet. Its piles are not braced, and the fender piling is in poor condition. The receipts at this wharf are 3,500 empty cases per year. The outgoing shipments are 3,500 full cases of canned tomatoes per year. This wharf is closed to use of all water carriers except those engaged in hauling for the owners of the wharf.

(*b*) The nearest railroad is at Sweet Hall, Va., 10 miles distant.

(*c*) A sandy road leads to King and Queen County courthouse.

(*e*) The upper wharf is owned by Mr. B. T. Taylor, who also owns about one-half mile of water front.

The steamboat landing, together with 20 feet of water front, is owned and operated by Mr. Spottswood Bird.

The canning factory wharf is owned by the King & Queen Packing Co., upon ground owned by Mr. B. T. Taylor.

There are no persons in this vicinity engaged regularly in the transfer and delivery business. The service of the most distant patron of these wharves requires a haul of 8 miles.

MELROSE LANDING.

(*a*) Melrose Landing is located in King and Queen County, Va., on the left bank of the Mattaponi River, 15 miles above West Point.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Its wharf is a pile structure, rectangular in shape, 25 by 76 feet. There are a few horizontal bracings connecting the piles. Trestle caps are formed by 1 by 12 inch planks doubled. There are no warehouses and no mechanical handling devices on the wharf. This wharf receives 25 dockages per month, and it is estimated that on an average two passengers will arrive and depart each week. The outgoing freight by steamboat consists of farm products to an amount of about 1 ton each month. By vessels, the following shipments are made:

Lumber, 1,000,000 feet per year.
Ties, 1,000 per year.
Wood, 500 cords per year.

The incoming freight consists of merchandise principally, and will probably average 15 tons per year. Loading and unloading is done by hand and with hand trucks over a gangplank. This wharf is open to use by all water carriers on equal terms. Wharfage rates are as follows: 5 cents per thousand feet of lumber, one-half cent per tie, and 5 cents per cord of wood.

(*b*) There is no physical connection with any railroad, and no mutual contract for the interchange of traffic.

(*c*) A public unimproved wagon road leads to Trueheart, Va.

(*e*) This wharf is owned by Bean & Littlepage, upon land owned by King and Queen County; about 150 feet of water front. There is no person or firm in this vicinity who is engaged in the transfer or delivery business. Service of the most distant patron requires a haul of 7 miles.

FOX'S LANDING.

(*a*) Fox's Landing is located in King William County, Va., on the right bank of the Mattaponi River, about 14 miles above West Point. There are two wharves; the upper wharf is a pile structure of irregular shape, in fair condition, extending 79 feet from the bank, and is 79 feet wide at its widest point. There is a tall, stiff-leg derrick and hoisting engine—25 horsepower—on the wharf. Steamboats land here only on signal. There are three dockages per month and eight passengers per year. The incoming freight consists principally of hay, grain, hardware, etc., and will average about 2 tons per month. The outgoing shipments are about as follows:

Mine props, 18,000 per year.
Piles, 2,000 per year.
Cordwood, 200 cords per year.
Ties, 5,000 per year.

All loading and unloading is done by hand, with hand trucks, or by means of the large derrick on the wharf.

This wharf is closed to all water carriers except those engaged in business with the owners.

The lower wharf is a P-shaped pile structure in good condition. Its wharf end is 40 by 44 feet and its length over all is 84 feet. A warehouse 36 by 14 feet is on the wharf end. This wharf was

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

built to load staves. It is now used as a reserve or overflow wharf in connection with the one just above.

(*b*) The nearest railroad is at Sweet Hall, Va., 5 miles distant.

(*c*) A private unimproved wagon road leads to Wakema, Va.

(*e*) These two wharves are owned by the Philadelphia Hardwood Lumber Co., the ground on which they stand being leased for five years from the landowner. This lease expires in 1916.

HUNTINGTON, VA.

(*a*) Huntington, Va., is located in King William County, Va., on the right bank of the Mattaponi River, about 13 miles above West Point. The landing consists of a pile of logs, covered with bark, about 8 feet thick. A chute leads from the top of the bluff and a dilapidated scaffold puts out toward the vessel. This wharf, with about three-fourths of a mile of water front, belongs to W. P. Bray & Sons. It is used for the shipment of the owner's wood. This shipment amounts to about 100 cords per year; haul in some cases, 1 mile.

KENTUCKY LANDING.

(*a*) Kentucky Landing is located in King William County, Va., on the right bank of the Mattaponi River, about 12 miles above West Point. Its wharf is a light pile structure in good condition. It is T-shaped with a wharf end 16 by 12 feet and a pier 12 feet wide with a length over all of 76 feet. The piles are not braced. The pier is supported on trestle bents of two vertical piles and a cap each. There is a wooden track for flat car on the wharf. The wharf is well equipped with fender piling. Incoming freight consists of bran, meal, agricultural implements, and household goods, and will average about 2 tons per month. The outgoing freight consists of stock, grain, potatoes, and poultry to an amount of about 1 ton per month, 1,200 cords of pine wood per year, 100 cords of pulp wood per year, and 2,500 ties per year. All loading and unloading is done by hand. The wharf is open to use by all water carriers. The steamboat company is allowed to land without wharfage rates. All outgoing shipments, other than steamboat, are made by the owner.

(*b*) The nearest railroad is 2 miles distant, at Sweet Hall, Va.

(*c*) A private unimproved road leads to Sweet Hall, Va.

(*e*) This wharf, with about 2 miles of water front, is owned and operated by Mr. B. Turner, a farmer. The services of the most distant patron require a haul of 1 mile.

SOUTH LANDING.

(*a*) South Landing is located in King William County, Va., on the right bank of the Mattaponi River, 10 miles above West Point. It is a crib landing on marsh with a long platform, a wooden track and flat car. It is being used as a temporary wood-shipping point.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

CLIFTON.

(*a*) Clifton is located in King and Queen County, Va., on the left bank of the Mattaponi River, 9 miles above West Point. There are two wharves.

The steamboat wharf is a pile structure, a distorted T in shape, in fair condition. Its wharf end is 62 by 20 feet and it carries a warehouse 20 by 17 feet. The pier is 9 feet wide and the length over all is 93 feet. There are six dockages per week and the number of passengers will average 12 per month. The receipts consist principally of merchandise, hay, and grain and will total about 6 tons per week. The outgoing freight is largely poultry, eggs, cattle, and grain and will average 3 tons per month. All loading and unloading is done with hand trucks over a gangplank. The use of this wharf is confined to the vessels of the Virginia Steam Navigation Co.

Just below the steamboat wharf is a wood and lumber landing. This wharf is a crib structure with good plank flooring on the end of a solid earth-fill pier. The wooden platform is 33 by 26 feet. There is no warehouse and no mechanical devices for loading. This wharf receives 24 dockages per year. Its receipts consist of fertilizer, farm implements, etc., and will average about 75 tons per year. The outgoing shipments are as follows:

Lumber, 2,850,000 feet per year.
Wood, 500 cords per year.
Ties, 3,000 per year.

Vessels are made fast at the wharf and all lumber, ties, and wood are dumped aboard from dump carts. This wharf is open to use by all water carriers on equal terms. The wharfage rates are 10 cents per thousand feet of lumber, 10 cents per cord of wood, and one-half cent per tie. No wharfage rate is charged for incoming freight.

(*b*) The nearest railroad is across the river at West Point, 15 miles away.

(*c*) An unimproved wagon road leads to New Plymouth, Va.

(*e*) Both these wharves belong to T. C. Knapp, who also owns about one-half mile of water front. The steamboat wharf is leased to the Virginia Steam Navigation Co. for 20 years. The lease expires about 1922. This lease does not provide for any money consideration, but Mr. Knapp is allowed to travel and ship his own freight on vessels of the company free of charge. There are no persons in this vicinity engaged in the transfer and delivery business. Service of the most distant patron of these wharves requires a haul of 14 miles.

OLD HOUSE LANDING.

(*a*) Old House Landing is located in King and Queen County, Va., on the left bank of the Mattaponi River, about 8½ miles above West Point. It is a light crib platform, rectangular in shape, with a good deck. No shipments have been made from this wharf. It was constructed as a temporary loading place to ship about 2,000,000 feet of lumber and will be abandoned as soon as that shipment is made.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

WATER FENCE.

(*a*) Water Fence is located in King and Queen County, Va., on the left bank of the Mattaponi River, 6 miles above West Point. It is a combination crib and pile structure in very bad condition. There is no fender piling. In shape it is rectangular, 12 by 85 feet. A flat car is run on a track formed by 2 by 12-inch plank laid flat at a gauge of 30 inches. The shore end of the track extends up a steep bank. The steamboat does not land at this landing. The outgoing shipments consist of the following:

Lumber, 1,000,000 feet per year.
Wood, 125 cords per year.
Ties, 2,500 per year.

All loading and unloading is done by hand. This wharf is open to use by all water carriers, but is used practically exclusively by its owner.

(*b*) The nearest railroad is at Roman Court, Va., 3 miles across the river.

(*c*) An unimproved wagon road leads from the landing into the surrounding country.

(*e*) Water fence landing is owned by Charles Bland. His ownership includes about 150 feet of water front.

RYE FIELD.

(*a*) Rye Field Landing is located in King and Queen County, Va., on the left bank of the Mattaponi River, about 5½ miles above West Point. It is a rectangular crib, with a floor and chute leading up a bank, and is in good condition.

Outgoing shipments consist of 1,750,000 feet of lumber per year, 150 cords of wood per year, 2,000 ties per year. All loading and unloading is done with wheelbarrows and by hand.

This wharf is open to all water carriers on equal terms. The wharfage rates are as follows:

Ten cents per cord of wood.
Ten cents per thousand feet of lumber.
One-half cent per tie.

(*b*) The nearest railroad is 3 miles away on the other side of the river.

(*c*) An unimproved wagon road leads to New Plymouth, Va.

(*e*) This wharf, with one-half mile of water front, is owned and operated by Mr. C. C. Guthrie, of New Plymouth, Va. Service of the most distant patron requires a haul of about 10 miles.

SHEPHERD'S OR CHAIN FERRY.

(*a*) Shepherd's, or Chain Ferry, is located in King and Queen County, Va., on the left bank of the Mattaponi River, a little less than 2 miles above West Point. There are three wharves.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

The upper wharf is a pile structure, the piles not connected with bracing, with a wharf end 86 feet wide, connected to the shore by two piers 20 feet wide, the length overall being 91 feet. The wharf is not in good condition. There are no mechanical devices. This wharf receives one dockage (vessel or barge) per week.

The incoming freight consists of fertilizer and general merchandise, and will average about 45 tons per month. The outgoing freight is as follows:

Lumber, 400,000 feet per month.
Wood, 75 cords per month.

All loading is done by hand from light one-horse wagons backed up to the side of the vessel.

This wharf is open to all water carriers on equal terms. The wharfage rates are as follows:

Ten cents per thousand feet for lumber.
Ten cents per cord for wood.
10 cents per ton for incoming freight.

The steamboat landing, or middle wharf, is a ramshackle pile wharf, but with a good warehouse 13 by 16 feet. The length over all is 110 feet; the wharf end is 27 feet wide, while the pier is 8 feet wide. There are no mechanical handling devices. The pier is built on trestles consisting of two vertical piles and a cap each. The piles are not braced.

This wharf receives 12 dockages per week from the steamers of the Virginia Steam Navigation Co. and the Norfolk, York River & Tidewater Steamboat Co.

This wharf is open to use by all water carriers on equal terms.

It belongs to the county, and it is understood no wharfage charges are made.

The lower wharf is a pile structure without bracing, in good condition. It is a distorted T in shape. The wharf end is 95 by 50 feet; the pier is 12 feet wide, and the length over all is 162 feet. This wharf receives one dockage per month. The incoming freight consists of hay, fertilizer, and merchandise, to the amount of about 75 tons per year. The outgoing freight is as follows:

Lumber, 900,000 feet per year.
Ties, 9,500 per year.
Wood, 200 cords per year.

All loading and unloading is done by hand, assisted in some cases with light wagons, as in the upper wharf.

This wharf is open to use by all water carriers on equal terms. The wharfage rates are 10 cents per thousand feet of lumber, 10 cents per cord for wood, and three-fourths cent per tie.

(*b*) The nearest railroad is at West Point, Va., 1 mile by ferry and wagon road.

(*c*) An unimproved wagon road leads to Shacklefoot, and another to Elsom, Va.

(*e*) The upper wharf, with about one-half mile of water front, is the property of Mr. H. W. Bland. The steamboat wharf, with about

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

210 feet of water front, is the property of King and Queen County. The lower wharf, with about 2,500 feet of water front, is owned and operated by Mr. R. M. Hart.

The service of the farthest patron of the wharves at Shepherds requires a haul of 9 miles. There are 3 men in this neighborhood who are engaged in the delivery and transfer business. Their charges are about 50 cents per mile.

A ferry is operated between Shepherds and the opposite side of the Mattaponi River. It is a flat boat, just large enough to take over one farm wagon and team. It lands on the sand beach just below the upper wharf, and is operated on a wire cable by a hand-power winch. This ferry is owned and operated by Bland & Hart. Their rate is 5 cents per passenger, 2½ cents per hoof, and 5 cents per wheel. The gross revenue will average about $5 per day.

WEST POINT, VA.

Complete report, including that for Mattaponi River front, is given under heading "York River."

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10. PAMUNKEY RIVER, VA.

(*a*) The Pamunkey River rises in Virginia, flows in an easterly direction about 130 miles, and joins the Mattaponi River to form the York River at West Point, Va.

It has about 26 ports and 27 wharves or landings, not including West Point. The wharves on the lower part of the river (below Whitehouse) are generally wooden pile structures. Many of them have small industrial railways for the transfer of freight between the pierhead and shore. There are no warehouse facilities. On the upper section of the river are found rude shore landings, often with lumber and wood chutes.

The principal articles of commerce are lumber, ties, mine props, wood, grain, and fertilizer. The receipts and shipments during 19.. amounted to 52,649 tons.

All the traffic of the Pamunkey is by rafts and lighters drawn by tugs. There is no regular steamboat service on the river.

Almost all of the landings and wharves are open to use by water carriers on equal terms. Wharfage rates are as follows:

Wood, 5 to 10 cents per cord.
Lumber, 10 cents per thousand feet.

(*b*) The West Point branch of the Southern Railway crosses the river at Whitehouse, and practically parallels it from that point to West Point. The Chesapeake & Ohio Railway passes south of the river and is about 12 miles distant at Plum Point. There is no physical connection between either of these railroads and any terminal of the river above West Point.

(*c*) The highways leading to these terminals are, in almost all cases, private roads, and are not improved.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*d*) The terminals of the Pamunkey River are ample in number for the present traffic and for the future traffic so far as it can now be foreseen.

(*e*) The Southern Railway owns about 1 mile of water front at West Point, Va. (See report on York River.) All the other terminals are privately owned. Service of the most distant patron of the various wharves and landings requires hauls overland of from 5 to 12 miles.

NEW CASTLE, VA.

(*a*) New Castle is located in Hanover County, Va., on the right bank of the Pamunkey River, about 55 miles above West Point. Its landing is a shore landing with a few piles driven for shore protection.

Lumber, piles, props, grain, and fertilizer are shipped over this landing.

This landing is closed to all water carriers except those engaged in the transaction of business with the owner.

(*b*) There is no physical connection with any railroad.

BASSETTS, VA.

(*a*) Bassetts is located in Hanover County, Va., on the right bank of the Pamunkey River, about 54 miles above West Point. Its landing is a shore landing with lumber and wood chute. The outgoing freight consists of lumber, ties, and wood.

(*b*) The nearest railroad is the Southern, about 15 miles distant.

(*c*) An unimproved private wagon road leads to the landing.

TYLERS, VA.

(*a*) Tylers is located in King William County, Va., on the left bank of the Pamunkey River about 48 miles above West Point. Its landing is a shore landing without artificial structure.

The outgoing shipments consist of wood and lumber.

Loading is done from shore over plank runways.

Tyler's Wharf is owned by Mr. Tyler.

PIPING TREE, VA.

(*a*) Piping Tree is located in King William County, Va., on the left bank of the Pamunkey River, about 46 miles above West Point. Its landing is a shore landing with wood and lumber chute.

The outgoing shipments consist of lumber, wood, and ties.

This landing is open to use by all water carriers on equal terms.

It is owned by Mr. John Haw.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

GRIMES, VA.

(*a*) Grimes is located in King William County, Va., on the left bank of the Pamunkey River, about 45 miles above West Point. Its landing is a shore landing with lumber chute in fair condition.

The outgoing freight consists of wood, ties, props, and lumber.

This landing is open to use by all water carriers on equal terms.

(*b*) The nearest railroad is the Southern, about 6 miles distant across the river.

(*c*) An unimproved private wagon road leads to this wharf.

BLACKWELLS, VA.

(*a*) Blackwells is located in Hanover County, Va., on the right bank of the Pamunkey River, about 43 miles above West Point. Its wharf is a log crib structure in poor condition.

The outgoing shipments consist of wood, lumber, ties, and mine props.

This wharf is closed to all water carriers except those engaged in the transaction of business with the Hoskin Lumber Co.

(*b*) The nearest railroad is the Southern, about 5½ miles distant.

(*c*) An unimproved private wagon road leads to the wharf.

(*e*) Blackwells Wharf is owned by the Hoskin Lumber Co. Service of its most distant patron requires a haul of about 6 miles.

NORTHBERRY, VA.

(*a*) Northberry is located in New Kent County, Va., on the right bank of the Pamunkey River, about 42 miles above West Point. Its landing is a shore landing with a lumber chute in fair condition.

The outgoing freight consists of lumber.

This wharf is closed to all water carriers except those engaged in the transaction of business with Mr. Richards.

(*b*) The nearest railroad is the Southern, about 5 miles distant.

(*c*) An unimproved private wagon road leads to this wharf.

(*e*) This landing is owned by Mr. Richards. Service of its most distant patron requires a haul of about 6 miles.

WILLEROYS, VA.

(*a*) Willeroys is located in King William County, Va., on the left bank of the Pamunkey River, about 40 miles above West Point. Its wharf is a log crib structure located on shore. It is in poor condition.

The outgoing freight consists of wood and lumber.

This landing is closed to all water carriers except those engaged in the transaction of busines with Mr. Montague.

(*b*) The nearest railroad is the Southern, about 4 miles distant the opposite side of the river.

(*c*) An unimproved private wagon road leads to this landing.

(*e*) Willeroys Wharf is owned by Mr. Montague. Service of its most distant patron requires a haul of about 6 miles.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

GREGORY, VA.

(*a*) Gregory is located in New Kent County, Va., on the right bank of the Pamunkey River, about 39 miles above West Point. Its landing is a shore landing with chute in fair condition.

The outgoing freight consists of lumber, ship timber, ties, and wood.

(*b*) The nearest railroad is the Southern, about 3 miles distant.

(*c*) An unimproved private wagon road leads to the wharf.

(*e*) Gregory Wharf is owned by Judge Roger Gregory. Service of the most distant patron requires a haul of about 6 miles.

LIBERTY HALL, VA.

(*a*) Liberty Hall is located in King William County, Va., on the left bank of the Pamunkey River, about 38½ miles above West Point. Its landing is a shore landing with a wooden chute in poor condition.

The outgoing freight consists of lumber, ties, and wood.

This wharf is open to use by all water carriers on equal terms.

(*b*) The nearest railroad is the Southern, about 2½ miles distant on the opposite side of the river.

(*c*) An unimproved private wagon road leads to the wharf.

(*e*) The service of the most distant patron requires a haul of about 7 miles.

ELLISON GREEN, VA.

(*a*) Ellison Green is located in King William County, Va., on the left bank of the Pamunkey River, about 38 miles above West Point. Its wharf is a wooden pile structure in fair condition. It is about 100 feet long and about 15 feet wide, and supports an industrial track with flat cars.

The outgoing freight consists of wood, lumber, and ties.

This wharf is open to use by all water carriers on equal terms.

(*b*) The nearest railroad is the Southern, about 2 miles distant on the opposite side of the river.

(*c*) An unimproved private wagon road leads to the wharf.

(*e*) Ellison Green Wharf is owned by Judge Roger Gregory. Service of the most distant patron requires a haul of about 6 miles.

WILLIAMS FERRY, VA.

(*a*) Williams Ferry, Va., is located in King William County, Va., on the left bank of the Pamunkey River, about 37 miles above West Point. Its wharf is a wooden pile structure in fair condition. It is a rectangle in shape, about 60 by 15 feet. There is an industrial track.

The outgoing shipments consist of lumber, ties, and wood.

This wharf is open to use by all water carriers on equal terms.

(*b*) The nearest railroad is the Southern, about 2 miles distant on the opposite side of the river.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*c*) An unimproved private wagon road leads to the wharf.

(*e*) Williams Ferry Wharf is owned by Mr. Bowers. Service of its most distant patron requires a haul of about 6 miles.

WHITEHOUSE, VA.

(*a*) Whitehouse is located in New Kent County, Va., on the right bank of the Pamunkey River about 30 miles above West Point. Its wharf is rectangular in shape, about 50 by 16 feet, and in fair condition.

About 750,000 feet of lumber are shipped away from this wharf per year.

This wharf is open to use by all carriers on equal terms.

(*b*) The Southern Railway passes within about 600 feet of this wharf, but there is no physical connection between the two.

(*c*) An unimproved private wagon road leads to this wharf.

(*e*) Whitehouse Wharf is owned by the estate of Mrs. Fitzhugh Lee. Service of the most distant patron requires a haul of about 5 miles.

LESTER MANOR, VA.

(*a*) Lester Manor is located in King William County, Va., on the left bank of the Pamunkey River about 25 miles above West Point. It has two wharves. The lumber wharf is a crib structure in poor condition. The outgoing shipments consist of lumber, ties, and wood. There are no receipts. This wharf is open to use by all water carriers on equal terms.

The cannery wharf is a pile structure in good condition. It is about 50 feet square and supports the cannery buildings. The outgoing freight consists of canned goods. This wharf is closed to all water carriers except those engaged in the transaction of business with the Lestor Manor Cannery Co.

(*b*) The Southern Railway passes about one-fourth mile from these wharves. There is no physical connection.

(*c*) Both of these wharves are accessible by private unimproved roads.

(*e*) The cannery wharf is owned by the Lestor Manor Cannery Co. Service of the most distant patron requires a haul of about [illegible] miles.

CUMBERLAND, VA.

(*a*) Cumberland is located in New Kent County, Va., on the right bank of the Pamunkey River about 22 miles above West Point. Its wharf is a wooden-pile structure, in poor condition, about 30 feet long and 15 feet wide. There is an industrial track.

The outgoing shipments consist of lumber. There are no receipts.

This wharf is open to use by all water carriers on equal terms.

(*b*) The nearest railroad is the Southern, on the opposite side of the river.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*c*) An unimproved private wagon road leads to the wharf.

(*e*) Cumberland Wharf is owned by Henry Fauntleroy. Service of the most distant patron requires a haul of about 8 miles.

MILL CREEK, VA.

(*a*) Mill Creek is located in New Kent County, Va., on the right bank of the Pamunkey River about 21 miles above West Point. Its wharf is a wooden-pile structure in poor condition. It is about 60 feet long and 15 feet wide. There is an industrial track about 100 feet long, with flat cars.

Lumber is shipped from this wharf, but there have been no recent shipments.

This wharf is open to use by all water carriers on equal terms.

(*b*) The nearest railroad is the Southern, about 2 miles distant, on the opposite side of the river.

(*c*) An unimproved wagon road leads to this wharf.

(*e*) Mill Creek Wharf is owned by Henry Fauntleroy. Service of the most distant patron requires a haul of about 10 miles.

MORGANS, VA.

(*a*) Morgans is located in New Kent County, Va., on the right bank of the Pamunkey River about 20 miles above West Point. Its wharf is a pile structure, in fair condition, about 100 feet long and 12 feet wide. An industrial track runs from the end of the pier to a point on land about 200 feet from the shore. This track carries two flat cars.

The outgoing freight consists of lumber, ties, and wood. About 1,000,000 feet of lumber per year is shipped.

This wharf is open to use by all water carriers on equal terms.

(*b*) The nearest railroad is the Southern, about 2 miles distant, on the opposite side of the river.

(*c*) An unimproved wagon road leads to the wharf.

(*e*) Morgans Wharf is owned by Mr. Fred Morgan. Service of the most distant patron requires a haul of about 6 miles.

BRICKHOUSE, VA.

(*a*) Brickhouse is located in King William County, Va., on the left bank of the Pamunkey River about 17 miles above West Point. Its wharf is a crib-and-pile structure in poor condition. It is about [illegible] feet long and 15 feet wide.

The outgoing freight consists largely of wood, lumber, and ties.

This wharf is open to use by all water carriers on equal terms.

(*b*) The nearest railroad is the Southern.

(*c*) An unimproved wagon road leads to the wharf.

(*e*) The service of the most distant patron requires a haul of about [illegible] miles.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

SWEET HALL, VA.

(*a*) Sweet Hall is located in King William County, Va., on the left bank of the Pamunkey River about 16 miles above West Point.

Its wharf is a wooden-pile structure in bad condition. It is a T in shape, with a wharf end 20 by 15 feet, a pier 15 feet wide, and a length over all of 315 feet. An industrial track runs the full length of the wharf and about 100 feet on shore.

The outgoing freight consists of lumber, wood, and ties.

This wharf is open to use by all water carriers on equal terms. Wharfage rates are as follows:

Passengers free.
Wood, 5 cents to 10 cents per cord.
Lumber, 10 cents per thousand feet.

(*b*) The nearest railroad is at Sweet Hall Station, about one-half mile distant.

(*c*) An unimproved wagon road leads to this wharf.

(*e*) Sweet Hall Wharf is owned by Theodore Pulle. Service of the most distant patron requires a haul of about 6 miles.

COUSIC, VA.

(*a*) Cousic is located in New Kent County, Va., on the right bank of the Pamunkey River about 15 miles above West Point.

Its wharf is a wooden pile structure in good condition. It is about 200 feet long and 10 feet wide and carries an industrial track.

About 1,000,000 feet of lumber per year are shipped away from this wharf.

A private ferry is operated across the river at this point.

This wharf is open to use by all water carriers on equal terms.

(*b*) The nearest railroad by land is the Chesapeake & Ohio, about 20 miles distant.

(*c*) An unimproved wagon road leads to this wharf.

(*e*) Service of the most distant patron requires a haul of about 9 miles.

EAMES, VA.

(*a*) Eames is located in New Kent County, Va., on the right bank of the Pamunkey River about 7½ miles above West Point.

Its wharf is a crib-pile structure in fair condition. It is about 60 feet long and about 15 feet wide.

The outgoing freight consists principally of lumber, ties, and wood.

(*c*) An unimproved private wagon road leads to this wharf.

(*e*) This wharf is owned by Mr. Eames. Service of the most distant patron requires a haul of about 5 miles.

ROBINSONS, VA.

(*a*) Robinsons is located in New Kent County, Va., on the south bank of the Pamunkey River, about 7 miles above West Point.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Its wharf is a combination pile and crib structure, in fair condition. It is about 60 feet long and about 15 feet wide. There is an industrial track on the wharf.

The outgoing shipments consist largely of lumber, ties, and wood.

This wharf is closed to all water carriers except those engaged in the transaction of business with its owner.

(*b*) The nearest railroad is at Toano, Va., about 13 miles distant.

(*e*) Service of the most distant patron requires a haul of about 6 miles.

PARHAMS, VA.

(*a*) Parhams is located in New Kent County, Va., on the right bank of the Pamunkey River, about 6 miles above West Point.

Its wharf is a wooden pile pier 60 feet long and 15 feet wide, in fair condition. An industrial track runs the full length of the wharf.

The outgoing freight consists principally of lumber and ties.

This wharf is open to use by all water carriers on equal terms. Wharfage rates are as follows:

Passengers, free.
Wood, 5 cents to 10 cents per cord.
Lumber, 10 cents per thousand feet.

(*b*) The nearest railroad is at Toano, Va., about 13 miles distant.

(*c*) An unimproved private wagon road leads to this wharf.

(*e*) Service of the most distant regular patron requires a haul of about 6 miles.

BRIGGS, VA.

(*a*) Briggs is located in New Kent County, Va., on the right bank of the Pamunkey River, about 6 miles above West Point.

Its wharf is a wooden pile structure, in poor condition. It is a Γ in shape, with a wharf end 30 by 15 feet, a pier 15 feet wide, and a length over all of 65 feet. There is an industrial track and two flat cars on the wharf.

The outgoing freight consists principally of lumber, wood, and ties.

This wharf is open to use by all water carriers on equal terms. Wharfage rates are as follows:

Passengers, free.
Wood, 5 cents to 10 cents per cord.
Lumber, 10 cents per thousand feet.

(*b*) The nearest railroad is the Chesapeake & Ohio, about 13 miles distant.

(*c*) An unimproved private wagon road leads to the wharf.

(*e*) Service of the most distant patron requires a haul of about 6 miles.

WHITE OAK, VA.

(*a*) White Oak is located in New Kent County, Va., on the right bank of the Pamunkey River, about 5 miles above West Point.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Its wharf is a wooden pile structure, in poor condition. It is rectangular in shape, about 40 feet long and 15 feet wide. An industrial track leads along the wharf to the shore. This wharf is not in use at present.

PLUM POINT, VA.

(*a*) Plum Point is located in New Kent County, Va., on the right bank of the Pamunkey River, opposite West Point.

Its wharf is a wooden pile structure in good condition. It is a T in shape, with a wharf end 75 by 30 feet, a pier 15 feet wide, and a length over all of 630 feet. An industrial track runs from the end of the wharf to the bluff, about 3,000 feet. A gas-power truck is operated on this track.

This wharf receives about 7,665 ferry dockages per year. The outgoing freight consists principally of lumber, pulp wood, cordwood, and ties.

It is open to use by all water carriers on equal terms. Wharfage rates are as follows:

Passengers, free.
Wood, 5 cents to 10 cents per cord.
Lumber, 10 cents per thousand feet.

(*b*) The nearest railroad is at West Point, across the river.

(*c*) A wagon road leads to Toano, Va.

(*e*) This wharf, with about 100 feet of water front, is owned by R. E. Richardson. There is no person or firm in this vicinity regularly engaged in the delivery or transfer business. Service of the most distant patron requires a haul of about 12 miles.

WEST POINT, VA.

Complete report, including that for the Pamunkey River front, is given under heading "York River."

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11. OCCOQUAN CREEK, VA.

(*a*) Occoquan Creek rises in Virginia, flows about 50 miles in a generally southeasterly direction, and empties into the Potomac River about 28 miles below Washington, D. C. Its navigable length, about 6 miles, forms a portion of the boundary line between Prince William and Fairfax Counties, Va.

Occoquan Creek has three ports—the town of Occoquan, the Washington Stone Co., and the District of Columbia Workhouse. Its wharves are about all solid-fill timber bulkhead landings, many of them being little more than shore landings.

There is no regular steamboat traffic on the Occoquan Creek. Its landings receive about 731 dockages per year.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

The outgoing shipments are about as follows:

Stone, 39,000 cubic yards per year.
Brick, 1,500,000 per year.
Railroad ties, 32,500 per year.
Lumber, 100,000 feet.
Wood, 200 cords per year.
Piles, 4,300 per year.

The incoming shipments consist largely of coal, fertilizer, cement, and lime, and will amount to about 25,258 tons per year.

A large part of loading and unloading is done by hand. At the workhouse stone is loaded to vessels through wooden chutes, coal is unloaded by means of a wooden stiff-leg derrick in wooden boxes. Bricks are wheeled directly onto scows with wheelbarrows.

Out of 10 landings on the Occoquan Creek only 2 are open to use by all water carriers on equal terms. Both of these are located in the town of Occoquan. Wharfage rates are as follows:

Piles, 5 cents or 10 cents each.
Wood, 4 cents or 5 cents per cord.
Ties, one-half cent each.
Lumber, 10 cents per thousand feet.

(*b*) The Richmond, Fredericksburg & Potomac Railroad crosses the Occoquan Creek on a high bridge about 3½ miles above its mouth. There is no physical connection between this railroad and any of the terminals on the creek and no interchange of traffic.

(*c*) A gravel wagon road crosses the Creek at Occoquan, Va., and forms the marginal road of the town. The Washington Stone Co. and workhouse landings are reached by unimproved wagon roads.

(*e*) All terminals on the Occoquan Creek are either private or Government owned. The greater number of the private-owned landings are rented to other persons or corporations. The average rental price is 49 cents per foot of water frontage per year. There is no person or firm in the vicinity of the town of Occoquan regularly engaged in the transfer or delivery business.

OCCOQUAN, VA.

(*a*) Occoquan is located in Prince William County, Va., on the right bank of the Occoquan Creek, about 6 miles above its mouth.

It has six landings, all of which are shore or bulkhead landings, the bulkhead being generally formed of logs or timbers laid horizontally.

Occoquan receives about 181 dockages per year. The outgoing shipments are as follows:

Ties, 62,500 per year.
Lumber, 100,000 feet per year.
Wood, 200 cords per year.
Piles, 4,300 per year.

The incoming freight consists principally of fertilizer, coal, dry goods, and groceries, and will amount to about 258 tons per year.

All loading and unloading is done by hand or with large skeleton wheelbarrows.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Two of the six landings are open to use by all water carriers on equal terms. Wharfage rates are as follows:

Piles, 5 cents or 10 cents each.
Ties, one-half cent each.
Lumber, 10 cents per thousand feet.
Wood, 5 cents per cord.

(*b*) The nearest railroad is at Occoquan Station, Va., 2½ miles distant.

(*c*) A marginal town road passes along the water front. It is improved with gravel.

(*e*) Occoquan has a developed water front of about 845 feet. All of this is under private ownership, but the greater part is operated by persons other than the owners upon a rental basis. From the terms of rental it appears that water-front property at Occoquan is worth about 49 cents per foot per year.

There is no person or firm in this vicinity engaged regularly in the transfer and delivery business. Service of the most distant patrons of the Occoquan water front requires a haul of about 18 miles.

JANNEY'S WHARF.

(*a*) Janney's Wharf is located in the town of Occoquan, Va., just below Janney's grist mill.

This wharf is a shore landing. There are two open cribs made of ties a little way from shore. There is no bulkhead. This landing receives about four dockages per year. There are no freight receipts. The outgoing shipments consist of railroad ties, and will amount to about 25,000 ties per year. Barges are moored to trees on shore, and ties are loaded over cribs in large skeleton wheelbarrows.

This landing is closed to use by all water carriers except those engaged in business with Mr. W. S. Lynn.

(*b*) There is no railroad connection nor contract for the interchange of traffic.

(*c*) A gravel town marginal road makes this landing accessible.

(*e*) This landing, with about 150 feet of water front, is owned by Mr. Tyson Janney. It is rented by Mr. W. S. Lynn, who pays one-fourth cent rental for each tie that he handles at this point.

LEADMAN'S WHARF.

(*a*) Leadman's Wharf is located just below Janney's Wharf, on the Occoquan Creek, in the town of Occoquan, Va.

It is a bulkhead landing, the bulkhead being formed of logs laid horizontally along the shore line.

The outgoing shipments consist of the following articles in quantities stated:

Railroad ties, 2,500 per year.
Lumber, 100,000 feet per year.

The receipts are as follows:

Coal, 100 tons per year.
Fertilizer, 50 tons per year.
Merchandise, 100 tons per year.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

All loading and unloading is done by hand and with large skeleton wheelbarrows. This landing is open to use by all water carriers on equal terms. Wharfage rates are:

Piles, 3 cents each.
Ties, one-half cent each.
Lumber, 10 cents per 1,000 feet.
Wood, 5 cents per cord.

No wharfage is charged on incoming freight.

(*b*) There is no physical connection with any railroad, and no mutual contract for the interchange of traffic.

(*c*) This landing is accessible from a gravel marginal town road.

(*e*) Leadman's Wharf receives a gross revenue of about $25 per year.

HANNA'S WHARF.

(*a*) Hanna's Wharf is located just below Leadman's Wharf, in the town of Occoquan, Va.

Its landing is a solid filled timber bulkhead, formed by heavy timbers laid horizontally. It lies along the shore and is about 20 feet long.

This wharf receives about four dockages per year. No freight is received. About 12,000 ties per year are shipped away.

All loading and unloading is done with large skeleton wheelbarrows.

This wharf is closed to all water carriers except those engaged in business transactions with the renter of the wharf.

(*b*) There is no physical connection with any railroad, and no contract for the interchange of traffic.

(*c*) This landing is accessible from the town marginal street, which is improved with gravel.

(*e*) This wharf, with about 150 feet of water front, is owned by Mrs. E. C. Hanna. It is rented for $72 per year.

J. O. CARTER'S WHARF.

(*a*) Carter's Wharf is located in the town of Occoquan, Va., on the right bank of the Occoquan Creek.

It is a timber bulkhead, filled solid with oyster shells.

This landing receives about 160 dockages per year. The outgoing shipments are as follows:

Ties, 18,000 per year.
Wood, 200 cords per year.
Piles, 300 per year.

The incoming freight consists principally of groceries, dry goods, and fertilizer, and will amount to about 8 tons per year.

This landing is open to all water carriers on equal terms. Wharfage rates are as follows:

Ties, one-half cent each.
Wood, 4 cents per cord.
Piles, 10 cents each.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

The river is tidal and navigable from its mouth to Fredericksburg, a distance of 106 miles. Its terminals are, in general, pile structures and are in good condition. Each wharf has one or more warehouses and the majority have industrial tracks laid along the pier for flat car transportation of freight between the shore and the wharf end. There are on the upper section of the river a great many mill or shore landings for individual farms. In this connection, also quite a number of grain chutes exist, the banks being from 10 to [illegible] feet high. A galvanized pipe about 3 or 4 inches in diameter is fixed upon a light trestle and run down the bank, with a hopper at the upper end. The grain is shoveled from wagons into the hopper and flows by gravity to the barge or vessel. On the lower river the wharves are equipped with small jib cranes and oyster derricks for hoisting oysters, fish, and crabs. The piles at the wharf ends are not spaced nor lined, but driven in bunches, and are not connected by bracing. Each port has from one to three wharves. Where there are more than one, the main wharf is the steamboat wharf, while the others are oil and gasoline wharves or canning-factory wharves.

This river is navigated regularly by steamers belonging to the Maryland, Delaware & Virginia Railway Co. These steamers afford connection between the river and Baltimore, Md., and Norfolk, Va. In addition there are a large number of vessels, barges, and scows operating upon the river. The Southern Transportation Co., of Baltimore, Md., alone operates between 70 and 80 barges and 12 tow-boats, and averages the year round at least one large tow a week up and down the Rappahannock River. These tows vary in length from two to six barges, the largest of which are 1,400-ton vessels.

In all, 2,467 landings were made for the calendar year ending December 31, 1911. These vessels carried a total of 220,333 tons of freight and 47,805 passengers.

All steamboat freight is unloaded with hand trucks across gang planks. Other freight is loaded or unloaded by hand. There are a liberal number of wharves, which are open to use by all water carriers. The wharfage rate paid for steamboat freight is, as a rule, 10 per cent of the transportation charges. For vessel freight the usual rates are from 8 to 15 cents per 1,000 feet of lumber, 8 to 1[illegible] cents per cord of wood, and from three-fourths to 1½ cents per ton. These latter rates do not include handling.

(*b*) There is no physical connection between any of the water terminals of the Rappahannock River and any railroad. The Maryland, Delaware & Virginia Railway Co. has a mutual contract with the Richmond, Fredericksburg & Potomac Railway Co. for the interchange of traffic at Fredericksburg, Va. The transfer in this case is made by wagons, a distance of about three-eighths of a mile.

(*c*) There are no improved highways to any of the terminals on the Rappahannock River. A dirt or unimproved road leads from each port into the surrounding country.

(*d*) It is believed that a sufficient number of terminals exist on this river, and that money and energy should be expended toward the improvement of those that do exist rather than for the creation of new terminals.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*e*) A few of the wharves on this river are owned by the Maryland, Delaware & Virginia Railway Co., but the majority are owned by individual owners of the farm or estate upon which they are located, and are operated with wharfage charges as public wharves. In several cases the right of way is given the vessels of the steamboat company, as they are the principal patrons.

FREDERICKSBURG, VA.

(*a*) Fredericksburg is located in Caroline County, Va., on the right bank of the Rappahannock River, 104 miles above its mouth. According to the 1910 census its population is 5,874. The town has about one-half mile of water front in the navigable portion of the Rappahannock River, but of this only about one-half of the total water front, or one-fourth of a mile, is utilized for shipping. There is only one real wharf, that belonging to the Maryland, Delaware & Virginia Railway Co. Three steamboats arrive each week; about 36 large vessels or barges are loaded per year with ties, wood, and lumber; 100 bushels of oysters in one oyster boat are received each week during the oyster season, and quite a large number of fish is received.

Mr. J. W. Masters operates his property as a public landing, reserving the right of way, however, to his own traffic, and Embrey's oyster-house landing is said to be utilized informally as a free wharf.

(*b*) The Richmond, Fredericksburg & Potomac Railroad crosses the Rappahannock River on a bridge at the upper limit of its navigable portion, but its grade is about 50 feet above the surface of the water, and it has no physical connection with the water front.

The Potomac, Fredericksburg & Piedmont Railroad (narrow gauge) Co. owns about 200 feet of water front at the lower end of the town, purchased, it is understood, with a view of placing a terminus at that point, but this has never been done. The Richmond, Fredericksburg & Potomac Railroad Co. and the Maryland, Delaware & Virginia Railway Co. have a mutual contract for the interchange of traffic, to be carried partly by rail and partly by water. Transfer is made by wagon. About 20 per cent of the freight business of the Maryland, Delaware & Virginia Railway Co. at Fredericksburg is through freight, in accordance with the above agreement.

(*c*) Water Street forms a marginal street for the greater part of the Fredericksburg water front. It is probably adequate for the present traffic, but it is not improved and not maintained in good condition.

(*e*) In Fredericksburg the city owns about 170 feet of water front; 70 feet of this is the ends of two streets entirely undeveloped, and the other 100 feet is the old gas-house wharf at the lower end of town; the latter is practically out of use now, being only used occasionally by small shippers of ties, wood, and lumber. The Maryland, Delaware & Virginia Railway Co. owns about 500 feet, but utilizes less than 200. The Potomac, Fredericksburg & Piedmont

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

traffic on this wharf is through traffic in accordance with the above-mentioned contract. All passenger traffic is local, there being no provision for the selling of through tickets.

(*c*) Water Street leads to the wharf. It is not improved and not in good condition.

(*e*) This wharf, with about 500 feet of water front, belongs to the Maryland, Delaware & Virginia Railway Co. A Mr. Paine has the contract for the transfer of through freight by wagons between the steamboat wharf and the Richmond, Fredericksburg & Potomac Railroad. The contract price is 3 cents per hundredweight, with a minimum price per trip of 15 cents.

EMBREY'S WHARF.

(*a*) This wharf is located in Fredericksburg, Va., on the Rappahannock River, a short distance below the steamboat wharf. It is a timber bulkhead with fender piles. About 20 large barges are loaded here each year. The shipments consist almost entirely of ties and there are no receipts. About 350,000 ties, or their equivalent in lumber, and 1,500 cords of wood are shipped per year. Vessels are moored to shore with long mooring lines and propped off with heavy props. Planks are laid from the bulkhead to the gunwales of the vessel and loading is done by hand across these planks from wagons on shore.

This landing is used solely for the business of W. S. Embrey (Inc.).

(*b*) There is no physical connection between this landing and the railroad and there are no through shipments or contracts for the interchange of traffic.

(*c*) An extension of Water Street connects this landing with those above. It is not improved and not in good condition.

(*e*) This landing, with about 300 feet of water front, is the property of W. S. Embrey (Inc.).

SPRING HILL.

Spring Hill landing is located in King George County, Va., on the left bank of the Rappahannock River, about 11 miles below Fredericksburg.

It is a light pile wharf with track and flat car and is a small shipping point for lumber.

ARNOLD'S WHARF.

(*a*) Arnold's Wharf is located in King George County, Va., on the left bank of the Rappahannock River, about 16 miles below Fredericksburg. This wharf sets in close to the shore. It is supported by four rows of piles driven four to the row and capped with large hewn stringers. The abutment is a solid filled log crib. A warehouse, 11 by 16 feet, is located on the wharf. The width of wharf end is 33 feet. The decking is in very bad condition.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

This wharf receives about 25 dockages per year, mostly from vessels seeking cargoes of wood, ties, or lumber. About 100 tons of fertilizer are received each year.

All loading and unloading is done by hand.

The landing is open to use by all carriers on equal terms.

(*b*) The nearest railroad is at Fredericksburg, Va., 14 miles away.

(*c*) An unimproved wagon road leads to Sealston, Va.

(*e*) This wharf belongs to J. B. Newton and C. T. Parks, of Sealston, Va. These gentlemen are in the wood and tie business and operate the wharf principally for their own shipments.

RATCLIFFS, VA.

Ratcliffs is located in King George County, Va., on the left bank of the Rappahannock River, about 18 miles below Fredericksburg.

Its wharf is a small pile platform without warehouse or mechanical devices for loading or handling materials. It has been abandoned as a steamboat landing, but a small amount of lumber, ties, and wood is shipped by vessel.

HOPYARD, VA.

(*a*) Hopyard is located in King George County, Va., on the left bank of the Rappahannock River, about 19 miles below Fredericksburg.

Its wharf is a small pile structure, set against the bank. Its condition is bad. In shape it is nearly rectangular, 35 by 11 feet. A substantial frame warehouse 20 by 27 feet, with an open shed, stands on land just in rear.

There are six dockages per week, and eight passengers arrive and depart in that period. The outgoing freight will total 82 pieces per week of poultry, eggs, fruit, and grain. The receipts are groceries and dry goods and will average 7½ tons per week. Loading and unloading is done with hand trucks over gangplank. This wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Fredericksburg, 20 miles away.

(*c*) An unimproved wagon road leads to Dogue, Va.

(*e*) This wharf, with 300 feet of water front, belongs to the Maryland, Delaware & Virginia Railway Co. There are no persons in this vicinity engaged in the transfer or delivery business. The service of the most distant patrons requires a haul of about 16 miles.

HAY MOUNT, VA.

(*a*) Hay Mount is located in Caroline County, Va., on the right bank of the Rappahannock River, about 24 miles below Fredericksburg.

Its wharf is a light pile structure, the bents supporting the pier consisting of two piles and a cap. None of the piles are braced. The wharf is an inverted L in shape, the wharf end being 18 by 14 feet.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

pally of farm products, poultry, eggs, calves, hay, and grain, is i amount per year as follows:

Corn, 3,000 bushels.
Hay, 1,000 tons.
Calves, 150.
Eggs, 150 crates.
Poultry, 3,600 head.
All others, 1,000 pieces.

The incoming freight is principally general merchandise an amounts to about 225 tons per year. The greater part of the freig at this wharf is package freight and is loaded or unloaded either by hand or by hand truck over a gangplank. This wharf is open use by all water carriers on equal terms. Its wharfage rates are per cent of the transportation charges on steamboat freight, 10 ce per ton on vessel freight (inbound), 10 cents per cord for wood. cents per thousand for lumber, and 1 cent each for ties.

(*b*) The nearest railroad is at Fredericksburg, 24 miles away.

(*c*) An unimproved wagon road leads to Welcome post office. V

(*e*) The Port Conway Wharf is owned by the Belgrove and W singham estates, represented by Mr. J. F. Jack. They also own ab three-fourths of a mile of water front. Each patron of this wha does his own hauling.

PORT ROYAL, VA.

(*a*) Port Royal is located in Caroline County, Va., on the ri bank of the Rappahannock River, about 30 miles below Frederic burg. As a shipping point it includes a steamboat landing (wharf a ferryboat beach landing, and a shore shipping point for wood. ti and lumber. There are about 327 boat arrivals per year, not inclu ing the ferry.

(*b*) The nearest railroad is at Milford, Va., 18 miles away.

(*c*) An unimproved road leads to Etta post office.

(*e*) The developed water front of this village consists of al 630 feet; of this, 300 feet belongs to the Maryland, Delaware Virginia Railway Co. (steamboat line), about 80 feet belongs to t village in street ends, and the remaining 250 feet is owned by t estate of D. B. Powers and by J. T. Thornton and is used and o erated as a public landing. Every patron hauls his own freight. longest haul being about 10 miles.

STEAMBOAT WHARF.

(*a*) The steamboat wharf is located at the upper end of the lage water front. It is a pile structure, in good condition. Nor its piles are braced. The bents supporting the pier consist of piles and a cap only. Its wharf end is 61 by 52 feet and contai wooden one-story warehouse, 31 by 38 feet. This is connecte shore by a pier 12 feet wide, carrying a steel track of 55-inch ga upon which a single flat car is operated by hand. There are six arrivals per week. About an average of 16 passengers pass over wharf in a week. The amount of outgoing freight is about six

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

per week, consisting principally of poultry, eggs, stock, garden truck, grain, and tobacco. The incoming freight will average about 15 tons per week and is principally store goods and fertilizer. There are no mechanical devices on this wharf, all loading and unloading being done with the common hand or baggage truck across a wooden gangplank. Traffic on this wharf is confined to the uses of the Maryland, Delaware & Virginia Railway Co., and all landings are made by that company's steamboats.

(*e*) This wharf is owned by the steamboat company, and their ownership includes about 300 feet of water front.

SHORE LANDING.

(*a*) The shore landing is a sandy beach and is divided into two parts. The upper part, about 100 feet, belongs to J. T. Thornton, and the lower part, about 150 feet, separated from the other by a street end, belongs to the estate of D. B. Powers. There are about 15 arrivals, barges and sailing vessels per year. About 1,100,000 feet of lumber, 50 cords of wood, and 1,000 cross ties are shipped from this landing each year. All this is loaded from shore by lighters. This landing is public, and is open to all water carriers on equal terms, the wharfage or shorage rates are 10 cents per cord of wood, 10 cents per thousand feet of lumber, and 1 cent per tie, and these rates do not include handling.

(*d*) A wharf is not believed necessary for the traffic carried over this landing.

(*e*) The longest haul for regular patrons of this landing is 7 miles.

FERRY.

A ferry is operated between Port Royal and Port Conway, Va. This ferry consists of a flatboat and a small boat. It is authorized by a State charter, belonging to the estate of D. B. Powers. The ferry is operated by Mr. D. B. Gibbs, under a yearly rental of $150. Mr. Gibbs averages about two trips per day with the large boat and about three trips per day with the small boat. His annual receipts rarely exceed $425.

WAVERLY, VA.

(*a*) Waverly Farm is located in Caroline County, Va., on the right bank of the Rappahannock River about 31 miles below Fredericksburg.

There is no wharf at this point, but lumber and cord wood are shipped, being loaded into lighters from the shore. There are no receipts. About 600,000 feet of lumber and 100 cords of wood are shipped each year.

(*b*) The nearest railroad is at Milford, Va., 19 miles away.

(*c*) An unimproved wagon road leads from Waverly to Etta post office, Va.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

(*d*) On account of the nature of the shipments at this point, the small amount thereof, and of its nearness to a good wharf at Port Royal, it is not believed that a wharf is necessary.

(*e*) Waverly belongs to the Rev. Bishop Funston.

CAMDEN FARM, VA.

(*a*) Camden Farm is located in Caroline County, Va., on the right bank of the Rappahannock River, about 32 miles below Fredericksburg.

Its wharf consists of a small dilapidated pile platform at the end of a solid-filled bulkhead pier, the bulkhead being formed of rotten logs laid horizontally. The pier and platform are 72 feet long and the river end is 27 feet wide. There are about 20 arrivals per year at this wharf, which consist of sailing vessels and barges. About 35 tons of fertilizer and lime are received, and the annual shipments are approximately as follows:

Grain, 2,000 bushels.
Lumber, 1,100,000 feet b. m.
Wood, 200 cords.
Cross ties, 5,000.
Hay, 25 tons.

All loading and unloading is done by hand. This wharf is open to use by all water carriers on equal terms, but the steamboats do not stop here. Wharfage rates are 12 cents per thousand feet of lumber, 1 cent per cross tie, and 10 cents per cord of wood.

(*b*) The nearest railroad is at Milford, Va., 20 miles away.

(*c*) An unimproved wagon road leads to Etta post office, Va., and other points.

(*e*) This wharf is controlled by Mrs. E. T. Pratt, executrix, who also controls about 2 miles of water front at this point. The service of the farthest regular patron of this wharf requires a haul of about 12 miles. There are no persons or firms engaged in the transfer or express business exclusively in this vicinity. Most patrons do their own hauling, and a few small farmers, chiefly colored, hire out with their teams and wagons when farm work is slack. The gross revenue derived from this wharf is about $200 per annum.

OAKEN BROW, VA.

(*a*) Oaken Brow is located in King George County, Va., on the left bank of the Rappahannock River, about 33 miles below Fredericksburg.

Its wharf is a pile structure in poor condition. It is placed against the bank without a pier, contains 1,023 square feet of clear wharf space and a one-story frame warehouse 31 by 23 feet. Shipments to and from this wharf are made in barges and sailing vessels. There are no mechanical handling appliances at the wharf, all loading and unloading being done by hand.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

(*b*) The nearest railroad is at Fredericksburg, 30 miles distant.

(*c*) An unimproved road leads from the wharf to Welcome Post Office, Va.

(*e*) This wharf is the property of Dr. Joseph H. Low.

GREENLAWS, VA.

(*a*) Greenlaws is located in King George County, Va., on the left bank of the Rappahannock River, about 35 miles below Fredericksburg. Its wharf is a pile structure in fair condition, T-shaped. The piles are not braced, and the fender piling is badly worn. The length over all is 158 feet; the wharf end has an area of 1,344 square feet. The pier is 12 feet wide and carries a track for small flat car made by laying 2 by 4 inch timbers flat to a 3-foot gauge. There are two one-story warehouses on the wharf, each 16 feet square.

Maryland, Delaware & Virginia Railway Co.'s steamboats land here regularly six times per week. An average of about 4 passengers per week cross the wharf. There are shipped about 6 crates of eggs per week, 4 coops of fowls per week, 450 bushels of peas per year, and 6 boxes of fish per week, while the receipts will average about 9 tons per week, principally store goods and fertilizer. All loading and unloading is done by hand trucks over a gangplank. This wharf is open to all water carriers on equal terms. The wharfage rates are 10 per cent of transportation charges for steamboat freight, one-fourth cent per bushel for grain, and 10 cents per cord for wood.

(*b*) The nearest railroad is at Guineas, Va., 21 miles away.

(*c*) An unimproved wagon road leads to Index Post Office, Va.

(*e*) Mr. P. Parker owns the wharf on 1 acre of ground, deeded to him for the purpose, from the farm of his brother, W. H. Parker, who owns about 450 feet of water front at this point. The gross revenue of the wharf is about $160 per year.

WILMOT, VA.

(*a*) Wilmot is in King George County, Va., on the left bank of the Rappahannock River, about 38 miles below Fredericksburg. The wharf consists of a pile platform set against shore. This platform is in fair condition; is about 51 by 31 feet. There are no mechanical handling devices on the wharf. A warehouse 50 by 21 feet is just in the rear. This platform is used by the Maryland, Delaware & Virginia steamers; the rest of the wharf is a solid-filled pile bulkhead 300 feet long. On the rear of this part of the wharf is a brick factory. The bulkhead is well supplied with mooring piles. There are about seven landings at this wharf per week. An average of about six passengers per week cross the wharf. The incoming freight consists of about 2,500 tons of coal per year, and about 400 tons per year of other articles, chiefly fertilizer, store goods, and household goods. There are shipped from this wharf about 2,000,000 brick,

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

1,000 tons of earth and clay, and about 200 tons of fish and country produce per year. Steamboat freight is loaded and unloaded by hand trucks over a gangplank. Bricks and earth are wheeled to vessel's edge on plank runways and dumped into a chute leading to the vessel's hatches. Coal is unloaded in a bucket with tackle rigged to masts of vessels. Two industrial steel tracks lead to bulkhead from inside of brick factory, but both are in very poor condition and not now used.

This wharf is open to all water carriers on equal terms. Its wharfage rates are 10 per cent of transportation charges for steamboat freight, and 5 cents per cord for wood and 10 cents per ton for fertilizer.

(*b*) The nearest railroad is at Bowling Green, Va., 24 miles distant.

(*c*) An unimproved wagon road leads to Index Post Office, Va.

(*e*) The Wilmot Wharf belongs to the Vulcan Firebrick Co., which owns about 2 miles of water front at this point. The gross receipts for wharfage are about $120 per year.

PORT MICOU, VA.

(*a*) Port Micou is in Essex County, Va., on the right bank of the Rappahannock River, about 41 miles below Fredericksburg. The landing at this point is the remains of what was once a solid-filled bulkhead pier with crib bulkhead protected by fender piling and presenting a river end 45 feet wide. An old warehouse about 16 by 24 feet stands on the center of the landing. Only vessels land at this wharf, and there are about three dockages per year. About 23 tons of fertilizer are received per year, and 8,000 bushels of grain and 25 cords of wood are shipped away per year. All loading and unloading is done by hand. The landing is open to use by all water carriers on equal terms.

(*b*) The nearest railroad is at Milford, Va., about 25 miles distant.

(*c*) A private unimproved road leads to Iraville, Va.

(*e*) Port Micou Landing belongs to Richard Baylor, who owns about 5 miles of water front at this point. Each patron of the wharf does his own hauling. The service of the most distant patron requires a haul of about 5 miles.

SAUNDER'S WHARF.

(*a*) Saunder's Wharf is located in Essex County, Va., on the right bank of the Rappahannock River, about 43 miles below Fredericksburg. The wharf is a pile structure in fair condition. The fender piling is new. There are no mechanical handling devices. The wharf sets against the shore and is practically a rectangle, 63 by [illegible] feet. There is a warehouse, 16 by 41 feet, and a small stock pen on the wharf. A small lumber wharf is located just below the main wharf for the loading of vessels.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

There are about 25 dockages per month at this wharf, and it is estimated that an average of 20 passengers cross it each week. Freight receipts are as follows:

Fertilizer, 500 tons per year.
Farm implements, 150 per year.
Groceries, 6 tons per week.
Grain, 1 ton per month.
Hay, 4 tons per month.

While the freight shipments are:

Grain, 200 bushels per month.
Fowls, 250 head per week.
Eggs, 20 crates per week.
Stock, 20 per week.
Odds and ends, 500 pounds per week.
Lumber, 60,000 feet b. m. per month.
Ties, 1,000 per year.

Loading and unloading is done by hand or with hand trucks across gangplank.

The wharf is open to use by all water carriers on equal terms, except that the steamboats of the Maryland, Delaware & Virginia Railway Co. are given the right of way at the main wharf. Wharfage rates are:

Ten per cent of transportation charges for steamboat freight.
Ten cents per thousand feet for lumber.
Ten cents per cord for wood.
One cent each for ties.

(*b*) The nearest railroad is at Milford, Va., 28 miles away.

(*c*) A private unimproved wagon road leads to Loretto Post Office, Va.

(*e*) This wharf, together with one-half mile of water front, is owned by Mr. W. C. Dickinson. Its gross receipts total about $400 per year. Each patron hauls his own goods. Eight country stores receive goods over this wharf, the service of the most distant patron requiring a haul of 14 miles.

LEEDSTOWN, VA.

(*a*) Leedstown is in Westmoreland County, Va., on the left bank of the Rappahannock River, about 45 miles below Fredericksburg. It has three wharves. The upper or pleasure wharf is a plain pile platform, very light, with a wharf end of 19 by 18 feet and a pier 10 feet wide; the middle or lumber wharf is a pile structure, 73 feet long over all, with a wharf end 18 feet square, and carrying a track of 42-inch gauge; the lower or steamboat wharf is a pile structure in fair condition. It has no mechanical handling devices. It sets close in to shore and is 81 by 50 feet. There is a small stock pen on the wharf and two warehouses, one 24 by 33 feet and the other 25 by 16 feet.

The upper wharf is used only for pleasure; the middle wharf receives about 23 dockages per year, and ships 650 cords of wood,

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

1,000,000 feet of lumber, and 40,000 ties per year. Loading is done with flat-car truck, without platform; sometimes by wheelbarrows. It is open to use by all water carriers on equal terms, wharfage rates being 5 cents per cord of wood, 5 cents per thousand feet of lumber, and 1 cent each for ties.

The steamboat wharf receives 6 dockages per week, and an average of 15 passengers arrive and depart in one week; 150 pieces of freight are shipped weekly, consisting principally of farm products, fruit, and stock. The freight receipts will average 10 tons per week and are largely dry goods, groceries, hay, and fertilizer. Loading and unloading is by hand trucks over gangplank. This wharf is confined to the uses of the boats of the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Fredericksburg, Va., 40 miles away.

(*c*) An unimproved wagon road leads to Norma, Va. A marginal wagon road runs parallel to the river and connects the shore ends of the three wharves.

(*e*) The pleasure wharf, with 300 feet of water front, belongs to John S. Baxter; the launch wharf belongs to the Leeds farm, controlled by Henry Taylor. This estate includes 600 feet of water front, lying on both sides of the steamboat wharf. The steamboat wharf and about 120 feet of water front is the property of the Maryland, Delaware & Virginia Railway Co.

No person or firm in this vicinity is engaged in the transfer or delivery business. The service of the most distant regular patron of this wharf requires a haul of about 10 miles.

LAYTON'S WHARF.

(*a*) Layton's Wharf is located in Essex County, Va., on the right bank of the Rappahannock River, about 48 miles below Fredericksburg. The wharf is a T in shape, with a length of 142 feet over all; a wharf end of 50 by 40 feet, and a pier 13 feet wide, fenced in with plank. It is a pile structure in fair condition, without mechanical handling devices. A frame one-story warehouse 24 by 16 feet is on the wharf, as is also a stock pen. A small pile lumber wharf is located just below the main wharf. This is in poor condition, and carries a flat car running on a strap-iron track blocked up above the decking of wharf. Layton's Wharf receives 6 dockages per week regularly, with an occasional extra; 15 passengers are estimated as an average to cross the wharf per week. The shipments include 15 pieces per week of farm products, stock, poultry, etc., 150 cords of wood, and 450 ties per year. The receipts are 20 tons per week of store goods, 78 tons per year of fertilizer, 100 tons per year of hay. All loading and unloading is done by hand or by hand trucks over gangplank.

This wharf is open to use by all water carriers on equal terms, the wharfage rates being 10 per cent of transportation charges for steamboat freight and 20 cents per ton for vessel freight.

(*b*) The nearest railroad is at Milford, Va., 30 miles away.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*c*) An unimproved wagon road leads to Chance post office, Va.

(*e*) Layton's Wharf, together with about three-eighths of a mile of water front, belongs to Mr. J. H. Allen, jr. Its gross revenue is about $275 per year. No person or firm is in the transfer and delivery business in this vicinity. Service of the most distant patron requires a haul of about 15 miles.

Just below Layton's is Hall's wood landing, a pile pier carrying a track and flat car. This, together with about 60 feet of water front, belongs to Mr. E. M. Hall, of Washington, D. C. There are no shipments to or from this wharf at the present time.

CARTER'S WHARF.

(*a*) Carter's Wharf is located in Richmond County, Va., on the left bank of the Rappahannock River, about 52 miles below Fredericksburg, Va.

The wharf is a pile structure in good condition. It is irregular in shape, having a length over all of 137 feet, a wharf end 56 by 38 feet, and a pier 12 feet wide. There are no mechanical devices for handling. Two 1-story frame warehouses, one 14 feet square, and the other 16 by 24 feet, are on the wharf. Just below the main wharf is the county free landing, which is a pile platform 15 by 33 feet. There are 6 arrivals per week; 6 passengers arrive and depart weekly. The outgoing freight consists of 122 pieces of country produce per week, and 650,000 feet of lumber, 850 cords of wood, and 2,000 ties per year. The receipts are 450 tons of fertilizer per year and 12 tons per week of store goods. Steamboat freight is handled by hand trucks across gangplanks. At the county wharf, vessel is poled off from landing and heavy planks span the gap. Wood is loaded with wood wheelbarrows, and lumber is loaded by hand.

Both these wharves are open to all water carriers on equal terms. The wharfage rates on the steamboat wharf are 5 per cent of transportation charges, both shipments and receipts. No charge is made at the county wharf.

(*b*) The nearest railroad is at Milford, Va., 35 miles distant.

(*c*) An unimproved wagon road leads to Montrose, Va.

(*e*) The steamboat wharf belongs to Warner Fones, together with about 1,200 feet of water front. The gross revenue of this wharf is about $200 per year. The county wharf, with about 105 feet of water front, is owned by Richmond County. The wharf is free, and no person is in charge.

Mr. Pomeroy, of Montrose, Va., is engaged in the transfer and delivery business. He has two wagons and his rates are about $2 per round trip of 6 miles. The service of the most distant patron requires a haul of about 7 miles.

BLANDFIELD, VA.

(*a*) Blandfield, Va., is located in Essex County, Va., on the right bank of the Rappahannock River, about 55 miles below Fredericksburg.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Its wharf is a pile structure with no pile bracings. It is a T in shape, is 226 feet long over all, has a wharf end 41 by 52 feet, and pier 12 feet wide, carrying an industrial steel track of 54-in. gauge. A warehouse 18 by 20 feet and a stock pen are on the wharf. A plank fence is on each side of pier.

This wharf has 6 dockages per week, and 10 passengers arrive and depart in that time; 10 pieces of farm products are shipped out and 30 pieces of store goods are received per week.

Loading and unloading is done by hand trucks over gangplank.

(*b*) The nearest railroad is at Milford, Va., 36 miles away.

(*c*) An unimproved wagon road leads across marsh to Caret post office.

(*e*) The wharf, with about 2 miles of water front, is the property of Robert Beverly. There are no persons or firms in the transfer or delivery business in this vicinity.

NAYLORS, VA.

(*a*) Naylors is located in Richmond County, Va., on the left bank of the Rappahannock River, about 59 miles below Fredericksburg.

The wharf is a pile structure, with new fenders and new decking. It is in shape a T, with a length of 237 feet over all, a wharf end of 85 by 34 feet and a pier 11 feet wide. There are no mechanical handling devices. Three one-story frame warehouses are on the wharf, of the following sizes 22 by 17 feet; 19 by 16 feet; 40 by [illegible] feet. One of these is without a door.

There are 25 dockages per month. An average of 6 passengers arrive and depart each week. Outgoing freight consists principally of poultry, wood, eggs, grain, stock, ties, and lumber. There are [illegible] pieces per week of steamboat freight and 50 cords of wood, 1,[illegible] ties, and 100,000 feet of lumber per year. The receipts consist of 100 tons of fertilizer per year and 4 tons of groceries and dry goods per week. All goods are loaded or unloaded by hand trucks over a gangplank. This wharf is open to use by all water carriers on equal terms. The wharfage rates are:

Ten per cent of transportation charges on steamboat freight.
One-fourth cent per bushel on grain.
Ten cents per cord of wood.
One cent per tie.
Ten cents per thousand feet of lumber.

(*b*) The nearest railroad is at Fredericksburg, 60 miles distant.

(*c*) An unimproved wagon road leads to Havelock, Va.

(*e*) The wharf, with 1½ miles of water front, belongs to Mr. T. T. Marks. No person or firms are in the transfer and delivery business in this vicinity. The service of the most distant regular patron requires a haul of 6 miles.

TAPPAHANNOCK, VA.

(*a*) Tappahannock is located in Essex County, Va., on the right bank of the Rappahannock River, about 62 miles below Fredericksburg.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Its wharf is a substantial pile structure in very good condition. It is well equipped with fender piling, but the piles bearing the structure are not braced. In shape it is a T, having a length of 725 feet over all, a wharf end 96 by 74 feet, and a pier 16 feet wide, bearing a flat car on an industrial steel track of 55-inch gauge. Two large buildings 22 by 65 feet are connected by an open shed and are used as warehouses, waiting rooms, office, etc. The remains of the old wharf alongside are used for storage, having two old warehouses and a stock pen. A neat and substantial railing is on both sides of the pier throughout its length.

There are 8 dockages per week; 50 passengers arrive and depart per week.

The outgoing freight consists of produce, poultry, eggs, stock, grain, and fish, and will average 400 pieces per week. In addition to this, the canning factory ships canned goods by lightering from shore to schooners to the extent of 16,000 cases per year. The incoming freight is 1,200 pieces of general merchandise per week and 1,000 tons of fertilizer per year.

All freight is loaded and unloaded by hand trucks over a gangplank.

This wharf is used exclusively by the steamboats of the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Penole, Va., 32 miles away.

(*c*) An unimproved wagon road leads from wharf to village.

(*e*) This wharf, with about 75 feet of water front, belongs to the Maryland, Delaware & Virginia Railway Co. The remainder of the water front of the town of Tappahannock is undeveloped, and is owned by individual residents in lengths of from 75 feet to 600 feet.

Mr. H. C. De Shields operates a ferry from the beach across the Rappahannock River at this point. This ferry operates under a State charter, which belongs to Mr. De Shields. The ferryboat is a flat boat towed by a gasoline launch. About nine trips across the river are made each day.

There are 10 expressmen in business in this vicinity. Their rates will average about 5 cents per package. Service of the most distant regular patron of the Tappahannock Wharf requires a haul of 18 miles.

WELLFORD, VA.

(*a*) Wellford is located in Richmond County, Va., on the left bank of the Rappahannock River, about 65 miles below Fredericksburg. Its wharf is a T-shaped pile structure, in good condition. Its wharf and is roomy, being 37 by 92 feet. It has two warehouses, one 40 by 6 feet and one 30 by 16 feet, and one stock pen. There are no mechanical handling devices. The wharf is 1,230 feet long over all, and its pier carries a steel track, upon which are operated, by hand, two flat cars, with platforms 10 by 6 feet. The piles of this wharf are not braced.

This wharf receives about 33 dockages per month, and it is estimated that an average of six passengers per week arrive and depart.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

The outgoing freight averages about 100 pieces per week, being principally fowls, calves, sheep, cows, oxen, oak staves, and fish. The receipts will total about 16½ tons per week of store goods, construction materials, liquors, and empty crates. All goods are loaded and unloaded with hand trucks over a wooden gangplank. The wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Penole, 39 miles away, across the Rappahannock River.

(*c*) An unimproved wagon road leads to Warsaw, Va.

(*e*) The Wellford Wharf, together with about 210 feet of water front, is the property of the Maryland, Delaware & Virginia Railway Co. The service of the most distant patrons requires a haul of about 9 miles. Mr. J. O. Lowry operates a transfer and delivery business. His prices vary from 10 cents to 25 cents per package for all distances within 6 miles. About 1 mile above Wellford Mr. W. J. Delano operates a wood landing. It is estimated that his shipments will amount to 600 cords per year.

WARES WHARF, VA.

(*a*) Wares is located in Essex County, Va., on the right bank of the Rappahannock River, about 67 miles below Fredericksburg. Its wharf is a P-shaped pile structure, 682 feet long over all. The piles are not braced. There are two warehouses, one 16 by 32 feet and one 28 by 39 feet, and a stock pen. An industrial steel track of 42-inch gauge runs out on the pier. A small jib crane for hoisting oysters and fish is located on the back side of the wharf end.

This wharf receives 30 dockages per week, including steamers, fish and oyster boats. An average of 20 passengers per week arrive and depart. The outgoing freight amounts to about 16 tons per week, and consists of oysters, fish, potatoes, peas, fruits, fowls, eggs, calves, and canned goods. The freight received is mostly fertilizer and store goods, and will average 30 tons per week. This wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co. That company pays a wharfage rate of 10 per cent of the transportation charges, both for freight and passengers.

(*b*) The nearest railroad is at Lestor Manor, 25 miles distant.

(*c*) An unimproved wagon road leads to Dunnsville, Va.

(*e*) Mrs. A. E. B. Ware owns this wharf, also about 205 feet of water front. The gross revenue is $800 per year. There are no persons or firms in this vicinity engaged exclusively in the transfer and delivery business. About 15 country stores are served from this wharf, the service of the most distant regular patron requiring a haul of about 12 miles.

BOWLERS WHARF.

(*a*) Bowlers Wharf is located in Essex County, Va., on the right bank of the Rappahannock River, about 73 miles below Fredericksburg. Its wharf is of T shape, 1,322 feet long over all, with a w

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

end 62 by 51 feet. A one-story frame warehouse 24 by 26 feet and a small stock pen are on the wharf. The pier is 13 feet wide and carries a steel track for flat car. The wharf is a pile structure, in good condition. An oyster house is built alongside and is equipped with two small jib cranes for hoisting oysters. The wharf is protected from ice by four substantial pile clusters.

This wharf receives about 33 dockages per month. An average of 25 passengers per week arrive and depart.

The outgoing freight consists principally of oysters, poultry, eggs, and stock. Ten thousand gallons and 2,500 barrels of oysters are shipped each season. All other shipments will probably average 35 pieces per week. Freight receipts are merchandise, and will probably average about 22 tons per week.

All loading and unloading is done with hand trucks across a gangplank. This wharf is open to use by all water carriers on equal terms, but the steamers of the Maryland, Delaware & Virginia Railway Co. have the right of way. The wharfage rate is 10 per cent of transportation charges.

(*b*) The nearest railroad is at West Point, Va., about 25 miles.

(*c*) An unimproved wagon road leads to Center Cross, Va.

(*e*) Bowlers Wharf is owned by Mr. R. S. Neal, who owns about one-fourth mile of water front at this point. The gross revenue from the wharf is about $600 per year. Richard Cook and Richard Garnett are engaged in the express and delivery business, with one wagon each. Their rates are 5 cents per hundredweight for 6 miles and 3 cents per hundredweight for 2 miles. The service of the farthest patron of this wharf requires a haul of about 10 miles.

SHARPS, VA.

(*a*) Sharps is located in Richmond County, Va., on the left bank of the Rappahannock River about 75 miles below Fredericksburg. Its wharf is a pile structure in good condition. It is a T in shape, and its length over all is 1,044 feet. Its wharf end is 83 feet wide, and its pier is 12 feet wide. Two large warehouses stand on opposite sides of the wharf end and are connected by an open shed, through which steel track with gauge of 38 inches leads to shore. The piles of this wharf are not braced. The fender system is in good condition and is ample. Nine oyster houses are built alongside the wharf. They have 14 oyster and fish hoists, being frames, jib cranes, and blocks and tackle attached to poles protruding from the gables of the houses.

This wharf receives 12 dockages per week, and it is estimated that 4 passengers per week arrive and depart. The principal exports are farm produce, fish, and oysters, and will average 500 pieces, or 25 tons per week; 70,500 bushels of oysters are shipped each year.

The wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co. There are no wharfage charges.

Just above the steamboat wharf is the Texas Oil Co.'s pier. This is a structure built on pile bents consisting of two vertical piles and

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

a cap. It is 650 feet long and 8 feet wide. An oil pipe line extends from the pierhead to the shore. This wharf receives 9 dockages per year from the tank steamers, and receives and issues about 20,000 gallons of gasoline per year. This wharf is not open to all carriers.

About one-half mile above the steamboat wharf is the Standard Oil Wharf. This is a very light pile structure with a house on the wharf end. The pier is very light and only about 3 feet wide. This wharf receives 12 dockages per year from the tank steamers and issues gasoline to about 25 launches. Three hundred barrels of gasoline and 180 barrels of kerosene are received and issued per year. This wharf is confined to the use of the Standard Oil Co. and its patrons.

(*b*) The nearest railroad is at Fredericksburg, Va., 75 miles away.

(*c*) An unimproved wagon road leads to Ivandale and Tidewater, Va.

(*e*) The steamboat wharf is owned by the Maryland, Delaware & Virginia Railway Co., who own about 85 feet of water front.

The Texas Co. leases its pier from Mr. Eli Sharp, who owns the pier and about 150 feet of water front. The present lease is for five years and expires in 1915.

The Standard Oil Co.'s wharf and about 675 feet of water front belongs to Mr. B. B. Lewis. It is rented to the Standard Oil Co. for $3 per month.

No person or firm in the vicinity of Sharps is engaged in the express and delivery business. Service of the most distant patron requires a haul of about 8 miles.

BAY PORT, VA.

(*a*) Bay Port is located in Middlesex County, Va., on the right bank of the Rappahannock River, about 78 miles below Fredericksburg.

Its wharf is a pile structure in fair condition, with a wharf end roughly hexagonal in shape, its sides varying from 22 to 30 feet long. There are four warehouses and a stock pen on the wharf. The piles are irregularly spaced and not braced. A steel track, gauge 56 inches, for a flat car, is laid along the pier to shore.

This wharf receives 14 dockages per week, and it is estimated that 14 passengers on an average arrive and depart in a week. The outgoing shipments consist of farm produce, poultry, eggs, etc., and will average about 175 pieces, or 7 tons per week. Receipts will total about 9 tons per week, and are principally merchandise. All loading and unloading is done with hand trucks over a gangplank.

This wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co. The wharfage rate is 10 per cent of transportation charges.

(*b*) The nearest railroad is at West Point, Va., 25 miles away.

(*c*) An unimproved wagon road leads to Butylo Post Office, Va.

(*e*) Col. B. L. Farinholt, of West Point, Va., owns this wharf, together with about 1½ miles of water front. The gross revenue of this wharf is about $700 per year. No person or firm is engaged in

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

this vicinity in the express or delivery business. Service of the most distant patron requires a haul of about 5 miles.

In this vicinity considerable wood, ties, and lumber are shipped from the shores on lighters or batteaux. The vessels are beached and wagons are driven alongside and loading is done by hand. There are four of these landings, owned by F. Lawson, Butylo, Va.: J. E. Sadler, Bay Port, Va.; R. H. Bland, Bay Port, Va.; and Middlesex County, Va.

The county landing is free; at the other three the following wharfage, or bankage, rates hold:

Wood, 5 cents per cord.
Lumber, 10 cents per thousand feet.
Ties, one-half cent each.

It is estimated that the following quantities are shipped from this landing per year:

Wood, 2,500 cords.
Lumber, 4,500,000 feet.
Ties, 6,000.

MORATTICO, VA.

(*a*) Morattico is located in Lancaster County, Va., on the left bank of the Rappahannock River, about 79 miles below Fredericksburg.

Its wharf is a pile T-shaped structure in fair condition, having a length of 2,016 feet over all and a wharf end 60 by 58 feet. A large number of oyster houses are built alongside the wharf. These have about 18 oyster derricks. A steel track, 54-inch gauge, leads along one side of the pier to shore, and there is a wooden handrail on the other side. The piles are not braced.

This wharf receives 12 dockages per week, and an average of 12 passengers per week arrive and depart. The outgoing freight consists principally of poultry, farm produce, and oysters, and will total 240 pieces per week, average. The receipts consist of groceries, hay, feed, and store goods, and will average 18 tons per week. Loading and unloading is done with hand trucks over gangplank.

This wharf is open to all water carriers on equal terms. The wharfage rate is 10 per cent of transportation charges.

(*b*) The nearest railroad is at West Point, Va., 30 miles away, and across two large rivers.

(*c*) An unimproved wagon road leads to Litwalton, Va.

(*e*) This wharf, including about 40 feet of water front, is owned and operated by Mr. E. B. Blackman. The gross revenue derived from the wharf is $900 per year. No person or firm in this vicinity is engaged in the transfer or delivery business. Service of the most distant patron requires a haul of 7 miles. The oyster shipments alone, from this wharf, will total 100,000 gallons and 7,000 barrels per year.

WATERVIEW, VA.

(*a*) Waterview is located in Middlesex County, Va., on the right bank of the Rappahannock River, about 81 miles below Fredericksburg.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Its wharf is a pile structure 1,623 feet long. The river end is an irregular semihexagon with faces 26 to 42 feet long. There are two warehouses 14 by 25 feet and 18 by 32 feet on the wharf, and several oyster houses alongside. The latter have 10 jib cranes for hoisting oysters. The pier is 12 feet wide, and carries a flat-car track with a gauge of 4 feet.

This wharf receives 12 dockages per week. The average number of passengers who arrive and depart each week is estimated at eight. The outgoing freight consists largely of oysters, fish, and country produce, and will average 600 pieces per week. The receipts are largely hay, fertilizer, feed, and merchandise, averaging 26 tons per week. Loading and unloading are done with hand trucks across a gangplank.

This wharf is open to all carriers upon equal terms. The wharfage rate is 10 per cent of transportation charges.

(*b*) The nearest railroad is at West Point, Va., 20 miles away.

(*c*) An unimproved wagon road leads to Samos Post Office, Va.

(*e*) This wharf, including about one-half mile of water front, belongs to the estate of Judge A. B. Evans. The gross revenue from the wharf is about $700. No person or firm in this vicinity is engaged in the transfer or delivery business. Service of the most distant patron requires a haul of about 12 miles.

MONASKON, VA.

(*a*) Monaskon is located in Lancaster County, Va., about 83 miles below Fredericksburg, on the left bank of the Rappahannock River.

Its wharf is a pile, T-shaped structure in good condition. The length over all is 922 feet. The wharf end is 40 feet wide, and the pier is 12 feet wide, with a steel track at a gauge of 55 inches. There are four warehouses and one stock pen on the wharf. The two warehouses nearest the river end are each 14 by 26 feet and are connected together by an open shed. There is one oyster derrick on the wharf.

This wharf receives 11 dockages per week, and an average of 16 passengers arrive and depart each week. About 10 tons of freight are shipped out each week, consisting principally of truck, oysters, poultry, and potatoes. The receipts are largely merchandise, store goods, and fertilizer, and will amount to 24 tons per week, average. Loading and unloading is done with hand trucks across a gangplank.

The wharf is open to use by all water carriers on equal terms. The wharfage rate is 25 cents per ton.

(*b*) The nearest railroad is at West Point, Va., about 23 miles away, across two large rivers.

(*c*) An unimproved wagon road leads to Ottoman Post Office.

(*e*) This wharf, with about one-fourth mile of water front, is the property of Col. B. L. Farinholt, West Point, Va. The gross revenue is about $700 per year. No person or firm in this vicinity is engaged

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

in the transfer or delivery business. Service of the most distant patron requires a haul of 5 miles. Six country stores are served from this wharf.

BURHANS, VA.

(*a*) Burhans is located in Middlesex County, Va., on the right bank of the Rappahannock River, about 93 miles below Fredericksburg. Its wharf is a wooden pile structure in fair condition. It has a river face 31 feet long and a length over all of 1,248 feet. It has new fender clusters and a separate fender system. A steel industrial track, 40-inch gauge, runs along the pier to shore. There are three small warehouses and one stock pen.

This wharf receives about 624 dockages per year. About 900 passengers per year arrive and depart.

The outgoing freight is as follows:

Oysters, 18,000 barrels per year.
Farm produce, 1,000 packages per year.
Fish, 12 boxes per year.

The incoming freight consists principally of store goods and fertilizer and will amount to about 1,250 tons per year.

All loading and unloading is done by hand or with hand trucks over a gangplank.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charge.

(*b*) The nearest railroad is at West Point, Va., about 25 miles distant.

(*c*) An unimproved wagon road leads to Locust Hill, Va.

(*e*) Burhans Wharf, together with about one-fifth of a mile of water front, is owned and operated by the Burhans Wharf Improvement Co. Its gross revenue is about $1,200 per year.

There is no person or firm in this vicinity regularly engaged in the transfer or delivery business. Service of the most distant patron requires a haul of about 5 miles.

TAFT, VA.

(*a*) Taft is located in Lancaster County, Va., on the left bank of the Rappahannock River, about 96 miles below Fredericksburg. Its wharf is a double pile pier with a wide slip in between. This structure is new and in good condition. The outer pier is 238 by 36 feet, the inner is 140 by 36 feet, and the slip is 76 feet wide. A solid plank fence about 3 feet high surrounds a portion of the outer end for coal storage. The entire wharf is lighted with electricity.

This wharf receives about 250 dockages per year.

The outgoing freight is as follows:

Fish scrap, 1,300 tons per year.
Fish oil, 1,200 barrels per year.

The incoming freight is as follows:

Raw fish, 200,000 bushels per year.
Coal, 2,500 tons per year.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Fish are unloaded by lowering a large bucket conveyor into the hold of the vessel. The fish are raised and dumped to a drag conveyor, which carries them into the factory building.

This wharf is closed to all water carriers except those engaged in the transaction of business with the Taft Fish Co.

(*b*) The nearest railroad is at West Point, Va., about 30 miles distant and across two large rivers.

(*c*) An unimproved wagon road leads to Whitestone, Va.

(*e*) This wharf, with about 1 mile of water front, is owned and operated by the Taft Fish Co.

WHITESTONE, VA.

(*a*) Whitestone is located in Lancaster County, Va., on the left bank of the Rappahannock River, about 96 miles below Fredericksburg. Its wharf is a wooden pile structure, in good condition. It presents a river face about 40 feet long; its pier is 12 feet wide and curved; the length over all is 575 feet. There are two warehouses 12 by 44 feet, on the wharf, connected by an open shed. A steel industrial track, gauge 48 inches, leads along the pier to shore. There is a small stock pen, one small oyster derrick, and one hoisting frame.

This wharf receives about 644 dockages per year. About 1,000 passengers arrive and depart per year.

The outgoing freight is as follows:

Oysters, 10,000 gallons per year.
Fish, 100 packages per year.
Tomatoes, 10,000 cases per year.
Fish roe, 2,000 cases per year.
Miscellaneous, 20,000 packages per year.

The incoming freight consists principally of general merchandise and will amount to about 4,000 tons per year.

All loading and unloading is done by hand and with hand trucks over a gangplank.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charges.

(*b*) The nearest railroad is at West Point, Va., about 40 miles distant, across two large rivers.

(*c*) An unimproved wagon road leads to Whitestone Village, Va.

(*e*) The Whitestone Wharf is owned and operated by the Taft Fish Co. The Maryland, Delaware & Virginia Railway Co. holds the right of way by lease. The gross revenue of the wharf is about $1,200 per year.

Levi Kelly and Willie Smith are engaged in the transfer and delivery business. Their rates are 50 cents per load for distances up to 1 mile and from $1 to $1.75 for distances between 1 mile and [illegible] miles. Service of the most distant patron requires a haul of about 6 miles.

NORTH END, VA.

(*a*) North End is located in Middlesex County, Va., on the right bank of the Rappahannock River, about 102 miles below Fredericks-

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

burg. Its wharf is a pile structure in good condition. It is irregular in shape, with a river face 34 feet long, a pier 12 feet wide, and a length over all of 1,225 feet. It has a separate fender system. There is a warehouse 30 by 20 feet, a waiting room 15 by 27 feet, a large open shed, and a small stock pen on the wharf; also one oyster derrick and one pair of pole shears with block and tackle. There is an industrial track leading to shore over which a flat car is operated by hand.

This wharf receives about 8,100 dockages per year, including small fish and oyster boats and launches. About 1,290 passengers per year arrive and depart.

The outgoing freight consists principally of fish, oysters, crabs. and farm produce, and will amount to about 4,000 tons per year. The incoming freight consists largely of store goods, fertilizer, and empty cases, and will amount to about 4,000 tons per year.

All loading and unloading is done by hand and with hand trucks over a gang plank.

The wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at West Point, Va., about 35 miles distant.

(*c*) An unimproved wagon road leads to Amburg Post Office, Va.

(*e*) The North End Wharf is owned by the Maryland, Delaware & Virginia Railway Co., on water frontage owned by James Grinell. There is no person or firm in this vicinity regularly engaged in the transfer or delivery business. Service of the most distant patron requires a haul of about 5 miles.

WESTLAND, VA.

(*a*) Westland is located in Lancaster County, Va., on the left bank of the Rappahannock River, about 104 miles below Fredericksburg. Its wharf is a pile structure in fair condition. It is irregular in shape, having a river face 53 feet long, a pier 8 feet wide, and a length over all of 755 feet. A one-story frame warehouse 30 by 20 feet stands on the wharf end. There is one pair of pole shears and hand winch for raising oysters and fish to the wharf. A runway for hand trucks is formed by laying 1 by 12 inch plank flat.

This wharf receives about 260 dockages per year. About 104 passengers per week arrive and depart.

The outgoing freight consists principally of fish and oysters, and will amount to about 1,300 pieces per year. The incoming freight consists of about 1,300 packages per year, principally store goods.

All loading and unloading is done with hand trucks over a gang plank.

This wharf is closed to all water carriers, except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Cape Charles, Va., about 40 miles distant across the Chesapeake Bay.

(*c*) An unimproved wagon road leads to Fishermans Post Office, Va.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*e*) This wharf is owned by the Maryland, Delaware & Virginia Railway Co. There is no person or firm in this vicinity that is regularly engaged in the transfer or delivery business. Service of the most distant patron requires a haul of about 2 miles.

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13. URBANA CREEK, VA.

(*a*) Urbana Creek is a tidal estuary of the Rappahannock River located in Middlesex County, Va. It is about 4¾ miles long and joins the Rappahannock River about 18 miles from Chesapeake Bay.

It has 5 ports and 16 wharves or shore landings. The wharves are all wooden pile structures of the ordinary pattern.

These landings receive about 9,686 dockages per year. About 1,300 passengers per year arrive and depart.

The outgoing freight consists principally of lumber, wood, ties and oysters, and will amount to about 14,920 tons per year.

The incoming freight consists largely of gasoline, merchandise, oysters, and lumber, and will amount to about 8,805 tons per year.

Loading and unloading is done by hand and with hand trucks. Oysters and fish are hoisted from small boats by small jib cranes.

Four of the Urbana terminals are open to use by all water carriers on equal terms. The county landing is free. At the others the following wharfage rates are charged:

Steamboat freight, 10 per cent of transportation charge.
Ties, 1 and 2 cents each.
Wood, 8, 10, and 15 cents per cord.
Lumber, 10 and 15 cents per thousand feet.

(*b*) There is no physical connection between any terminal on this creek and any railroad.

(*c*) All the Urbana terminals are accessible by unimproved wagon roads.

(*d*) The wharves and landings of Urbana Creek are ample in number for the present traffic and for the future traffic so far as it can now be foreseen.

(*e*) With one exception, all terminal property on the Urbana Creek is privately owned and privately operated. The county of Middlesex owns the county landing and operates it as a free wharf. No person or firm in this vicinity is regularly engaged in the transfer and delivery of business.

ROBINSONS LANDING.

(*a*) Robinsons Landing is located in Middlesex County, Va., on the right bank of Urbana Creek, about 1½ miles above Urbana. There is shipped from this landing and from smaller landings above the following:

Ties, 200 per year.
Wood, 258 cords per year.
Lumber, 175,000 feet per year.
Piles, 200 per year.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

GLEBE LANDING.

(*a*) Glebe is located in Middlesex County, Va., on the right bank of Urbana Creek, about 1 mile above Urbana. It is a shore landing. Lumber is piled on cribs at the water's edge. This landing receives about 24 dockages per year.

The outgoing freight is as follows:

Wood, 200 cords per year.
Ties, 2,000 per year.
Lumber, 1,500,000 feet per year.

There are no receipts.

All loading and unloading is done by hand.

The landing is open to use by all water carriers on equal terms. Wharfage rates are as follows:

Wood, 8 and 10 cents per cord.
Lumber, 10 cents per thousand feet.
Ties, 1 cent each.

(*b*) The nearest railroad is at West Point, Va., about 18 miles distant.

(*c*) An unimproved wagon road leads to Saluda, Va.

(*e*) This landing, with about one-half mile of water front, is owned by Mrs. E. A. Chowning, and is rented to Mr. R. A. Carlton. There is no person or firm in this vicinity regularly engaged in the transfer or delivery business. Service of the most distant patron requires a haul of 4 miles.

PITTS LANDING.

(*a*) Pitts Landing is located in Middlesex County, Va., on the right bank of Urbana Creek, about 1 mile above Urbana. It is a shore landing, from which about 500,000 feet of lumber per year is shipped.

It is open to use by all water carriers on equal terms. Wharfage rates are as follows:

Wood, 8 cents or 10 cents per cord.
Lumber, 10 cents per thousand feet.
Ties, 1 cent each.

COUNTY LANDING.

(*a*) The county landing is located in Middlesex County, Va., on the right bank of Urbana Creek, just above the Urbana Bridge. It is a shore landing, about 300 feet long. The outgoing shipments from this landing are as follows:

Wood, 500 cords per year.
Ties, 500 per year.
Lumber, 350,000 feet per year.

There are no receipts.

Loading and unloading are done by hand.

The landing is open to use by all water carriers on equal terms. No wharfage charge is made.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*b*) The nearest railroad is at West Point, Va., about 21 miles distant.

(*c*) An unimproved wagon road leads to Urbana, Va.

(*e*) This landing, with about 300 feet of water front, is owned by the county of Middlesex.

URBANA, VA.

(*a*) Urbana is a town of about 400 inhabitants, located in Middlesex County, Va., on the left bank of Urbana Creek, just above its mouth.

It has 11 wharves, all except one being pile structures of the ordinary type.

These wharves receive about 9,662 dockages per year. About 1,300 passengers per year arrive and depart.

The outgoing freight consists principally of lumber, oysters, wood, and flour, and will amount to about 7,696 tons per year.

The incoming freight consists largely of gasoline, merchandise, oysters, and lumber, and will amount to about 8,805 tons per year.

Loading and unloading are done by hand and with hand trucks. Oysters are hoisted from small boats by means of small jib cranes.

Only one wharf, the steamboat wharf, is open to use by all water carriers on equal terms. Wharfage rates are as follows:

Steamboat freight, 10 per cent of transportation charge.
Ties, 2 cents each.
Wood, 15 cents per cord.
Lumber, 15 cents per thousand feet.

(*b*) The nearest railroad is at West Point, Va., about 20 miles distant.

(*c*) The wharves of Urbana are accessible by unimproved town roads.

(*d*) The wharves of Urbana are ample in number for the present traffic and for the future traffic, so far as it can now be foreseen.

(*e*) Urbana has about 1 mile of water front, and the greater part is developed. With the exception of one street end, which belongs to the town, all the frontage is privately owned and privately operated. The following persons own undeveloped portions of the Urbana water front:

Dr. Palmer, 150 feet.
W. C. Fitzhugh, 150 feet.
Thornton Bros., 180 feet.
Mrs. Jack Lumpkin, 100 feet.
Mr. Glieb, Mr. Marsten, Mr. Pitts, Mr. Smith, and J. E. Richwine, 350 feet.
C. A. Taylor, 1,000 feet.

There is no person or firm in this vicinity who is regularly engaged in the transfer or delivery business. Service of the most distant patron of the Urbana terminals requires a haul of about 11 miles.

WEBBS WHARF.

(*a*) Webbs Wharf is located in Urbana, Va., on the left bank of Urbana Creek, about 4,150 feet above the Government jetty.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

This wharf is only used for small boats. It is owned by Sarah Webb.

SMITH'S WHARF.

(*a*) Smith's Wharf is located in Urbana, Va., on the left bank of Urbana Creek, about 4,050 feet above the Government jetty. It is a pile structure in poor condition. It is a rectangle in shape, 91 by 97 feet, with a warehouse and oyster house. There are two oyster jib cranes.

This wharf is not used as a shipping point at the present time. With 91 feet of water front it is owned by Smith & Bros.

STEAMBOAT WHARF.

(*a*) The steamboat wharf is located in Urbana, Va., on the left bank of Urbana Creek, about 3,900 feet above the Government jetty. It is a wooden-pile structure in good condition. Its shape is irregular. There is about 226 linear feet available for berthing vessels. One small jib crane is on the wharf, and there are two frame warehouses 51 by 39 feet and 60 by 50 feet.

This wharf receives about 312 dockages per year. About 1,300 passengers per year arrive and depart.

The outgoing shipments are as follows:

Stock, 1,820 head per year.
Fowls, 2,600 coops per year.
Eggs, 5,200 crates per year.
Miscellaneous, 15,600 pieces per year.

The incoming freight consists principally of merchandise, groceries, fertilizer, and hay, and will amount to about 2,340 tons per year.

All loading and unloading is done with hand trucks over gangplanks. This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charge.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) An unimproved town street leads to the business portion of the town.

(*e*) This wharf, with about 300 feet of water front, is owned and operated by Mr. C. S. Burton. Service of the most distant patron requires a haul of about 11 miles.

SHIPYARD.

(*a*) The Urbana Shipyard is located on the left bank of Urbana Creek, about 3,200 feet above the Government jetty. It is a shore landing in connection with a marine railway and shipyard.

This landing receives about 250 dockages per year.

About 250,000 feet of dressed lumber per year is shipped out and about 250,000 feet of rough lumber per year is received.

This landing is closed to all water carriers, except those engaged in the transaction of business with Chowning & Geslee.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*e*) This landing, with about 300 feet of water front, is owned and operated by Chowning & Geslee.

MIDDLESEX MANUFACTURING & MERCANTILE CORPORATION.

(*a*) The Middlesex Manufacturing & Mercantile Corporation's plant is located in Urbana, Va., on the left bank of Urbana Creek about 2,250 feet above the Government jetty.

There are three wooden-pile wharves. The upper lies against the shore. It has a river end 40 feet long. It is lighted with electricity and is in fair condition.

The gasoline wharf is a reversed P in shape, with a wharf end 35 by 18 feet, a pier 8 feet wide, and a length over all of 118 feet. There are three 2,000-gallon tanks on this wharf.

The mill wharf is a small pier 8 feet wide and 50 feet long.

These wharves receive about 3,900 dockages per year.

The outgoing freight is as follows:

Ice, 2,500 tons per year.
Flour, 1,500 barrels per year.
Meal, 2,000 bushels per year.
Chicken feed, 13 tons per year.
Gasoline engines, 30 per year.
Gasoline, 35,000 gallons per year.
Oils, 5,000 gallons per year.

The incoming freight is as follows:

Gasoline, 35,000 gallons per year.
Oil, 15,000 gallons per year.
Wheat, 30,000 bushels per year.
Corn, 15,000 bushels per year.
Oats, 2,500 bushels per year.
Coal, 1,200 tons per year.
Machinery, 30 pieces per year.
Ammonia, $200 value per year.
Pipes, etc., $1,000 value per year.

This wharf is closed to all water carriers except those engaged in the transaction of business with the Middlesex Manufacturing & Mercantile Corporation.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) Unimproved town streets lead to the business portion of the town.

(*e*) These wharves, with 279 feet of water front, belong to the Middlesex Manufacturing & Mercantile Corporation.

HURLEY'S WHARF.

(*a*) Hurley's Wharf is located in Urbana, Va., on the left bank of Urbana Creek, about 2,000 feet above the Government jetty. It is a new wooden-pile structure with a river end 70 feet long and a depth of 25 feet. There are four jib-crane oyster hoists on the wharf.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

This wharf receives about 3,900 dockages per year. The outgoing freight is as follows:

Oysters, 40,000 gallons per year.
Canned goods, 15,000 cases per year.

The incoming freight consists of about 50,000 bushels of oysters and 15,000 baskets of tomatoes per year. Loading and unloading is done by hand, with the small hoists mentioned above, and with hand trucks.

This wharf is closed to all water carriers except those engaged in the transaction of business with Mr. J. W. Hurley.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) An unimproved town street leads to the business portion of the town.

(*e*) This wharf, with about 100 feet of water front, is owned by Mr. J. W. Hurley.

GRESSITT'S WHARF.

(*a*) Gressitt's Wharf is located in Urbana, Va., on the left bank of Urbana Creek, about 1,500 feet above the Government jetty. It is a wooden-pile wharf in fair condition. Its river end is 176 feet long. A wooden warehouse is on the wharf.

This wharf receives about 1,300 dockages per year. The outgoing freight is as follows:

Ties, 600 tons per year.
Wood, 50 cords per year.
Lumber, 240 tons per year.

The incoming freight is as follows:

Brick, 400,000 per year.
Lime, 400 barrels per year.
Gasoline and oil, 600 barrels per year.
Cement, 300 barrels per year.
Miscellaneous, $5,000 value per year.

All loading and unloading is done by hand.

This wharf is closed to all water carriers except those engaged in the transaction of business with Mr. J. D. Gressitt. Other persons sometimes use the wharf by special permission. In these cases the following wharfage rates are charged. Wharfage does not include handling.

Ties, 2 cents each.
Wood, 15 cents per cord.
Lumber, 15 cents per thousand.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) An unimproved wagon road leads to the business part of the town.

(*e*) This wharf, with about 200 feet of water front, is owned by Ben Upton and is leased to Mr. J. D. Gressitt. Mr. Gressitt owns 100 feet of water front at this point. The lease expires in January, 1913.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

MARSTEN'S WHARF.

(*a*) Marsten's Wharf is located at Urbana, Va., on the left bank of Urbana Creek about 1,200 feet above the Government jetty. It is a light pole structure with steps leading down from the wharf end. It is a T in shape; its wharf end is 13 by 8 feet; its pier is 5 feet wide and is 134 feet long over all. This wharf is only used as a small-boat landing. There is no shipping.

(*e*) This wharf, with about 600 feet of water front, is owned by Mr. W. W. Marsten.

RANDOLPH HIGHLAND WHARF.

(*a*) The Randolph Highland Wharf is located at the lower end of the town of Urbana, on the left bank of Urbana Creek just above the Government jetty. It is a wooden-pile structure, in fair condition. The wharf end is a rectangle 50 by 40 feet, almost entirely covered with a one-story frame warehouse 42 by 30 feet. Its pier, which leaves at an angle from the right rear corner of the wharf end, is about 10 feet wide. A good steel industrial track leads to two factory buildings on the shore.

The wharf is not used at present.

(*b*) There is no physical connection with any railroad.

(*c*) An unimproved street connects the factory buildings with the town of Urbana, but there is no connection with the wharf.

(*e*) This wharf, with about 1,500 feet of water front, is owned by the Urbana Manufacturing Co.

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14. HARBOR AT MILFORD HAVEN, VA.

(*a*) The harbor at Milford Haven is a tidal estuary of Chesapeake Bay about 4 miles long and from one-half to 1 mile wide, and about 35 miles north of Fortress Monroe.

It has three regular ports. Its wharves are wooden-pile structures, in good condition. Each has a frame one-story warehouse and one or more small derricks or frames for hoisting oysters, crabs, and fish from small boats to the platforms of the wharves.

The wharves of Milford Haven receive about 813 dockages per year. About 1,675 passengers per year arrive and depart. The outgoing freight consists principally of oysters, fish, eggs, and crabs and will amount to about 2,793 tons per year.

The incoming freight consists largely of general merchandise, fishermen's supplies, boat supplies, and hay, and will amount to about 2,395 tons per year.

All loading and unloading is done by hand or with hand trucks over a gangplank.

The Cricket Hill Wharf is the only one on Milford Haven that is open to use by all water carriers on equal terms. The wharfage rate is 10 cents per ton.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*b*) The nearest railroad to Milford Haven is at West Point, Va., almost 40 miles away.

(*c*) All the terminals of the Milford Haven are accessible from the land side by wagon roads, but these roads are not improved.

(*d*) It is reported that there is considerable congestion at Callis Wharf at times, due to lack of wharf and warehouse space.

(*e*) The Baltimore, Chesapeake & Atlantic Railway owns outright one terminal on Milford Haven and controls one other by lease. The latter is privately owned. The wharf at Cricket Hill is owned and operated by a partnership.

All delivery and transfer is done by the patrons of the wharves.

FITCHETT'S WHARF, VA.

(*a*) Fitchett's Wharf is located in Mathews County, Va., on the right bank of the Milford Haven, about 3½ miles above the United States Government dike.

Its wharf is a wooden-pile structure in good condition. It is rectangular in shape, 110 by 41 feet. There is a frame warehouse 51 by 30 feet.

This wharf receives about 268 dockages per year. It is estimated that 150 passengers per year arrive and depart.

The outgoing freight consists principally of eggs, poultry, oysters, and fish, and will amount to 2,500 pieces per year. The incoming freight consists largely of general merchandise, hay, grain, and mill feed, and will amount to about 620 tons per year.

All loading and unloading is done by hand or with hand trucks over a gangplank.

This wharf is closed to all water carriers except the Baltimore, Chesapeake & Atlantic Railway Co.

(*b*) The nearest railroad is at West Point, Va., about 40 miles distant.

(*c*) An unimproved wagon road leads to Mathews, Va.

(*e*) Fitchett's Wharf, with about 300 feet of water front, is owned by Mr. W. E. Fitchett, Fitchetts, Va.

The wharf is leased to the Baltimore, Chesapeake & Atlantic Railway Co. on a 15-year lease, which expires in 1916. By the terms of the lease the steamboat company pays an annual rental of $125 and is required to keep the wharf in repair.

There is no person or firm in this vicinity engaged regularly in the transfer and delivery business. Service of the most distant patron requires a haul of about 5 miles.

CALLIS WHARF.

(*a*) Callis Wharf is located in Mathews County, Va., on Gwynns Island, on the right bank of the Milford Haven, about one-half mile above the United States Government dike.

Its wharf is a wooden-pile structure in good condition. It is a T in shape, with a wharf end 58 by 40 feet and a pier 33 feet wide.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

There is a one-story frame warehouse 50 by 20 feet on the wharf; also three small oyster derricks and one oyster-hoisting frame.

This wharf receives about 270 dockages per year. It is estimated that 525 passengers per year arrive and depart.

The outgoing freight is as follows:

Oysters, 2,300 barrels per year.
Fish, 10,800 barrels per year.
Crabs, 7,500 barrels per year.
Truck, 500 pieces per year.

The incoming freight consists principally of groceries, fishermen's supplies, and boat supplies, and will amount to about 1,400 tons per year.

All loading and unloading is done by hand or with hand trucks over a gangplank.

This wharf is closed to all water carriers except the Baltimore, Chesapeake & Atlantic Railway Co.

(*b*) The nearest railroad is at West Point, Va., about 41 miles distant.

(*c*) An unimproved wagon road leads to Grinstead, Va.

(*e*) The Callis Wharf is owned by the Baltimore, Chesapeake & Atlantic Railway Co.

Service of the most distant patron requires a haul of 4 miles.

CRICKET HILL, VA.

(*a*) Cricket Hill is located in Mathews County, Va., on the left bank of the Milford Haven, about 150 yards above the United States Government dike.

Its wharf is a wooden-pile structure in good condition. It is a T in shape, having a wharf end 51 by 41 feet, a pier 10 feet wide, and a length over all of 324 feet. There is one oyster frame and one frame warehouse, 16 by 32 feet.

This wharf receives about 275 dockages per year. It is estimated that 1,000 passengers per year arrive and depart.

The outgoing freight consists principally of produce, chickens, eggs, and oysters, and will amount to about 200 tons per year.

The incoming freight consists largely of merchandise, and will amount to about 375 tons per year.

Loading and unloading is done with hand trucks over a gangplank. Transfer between shore and warehouse, and vice versa, is made with a small four-wheeled truck drawn by hand.

This wharf is open to use by all water carriers on equal terms. The regular wharfage rate is 10 cents per ton. The Baltimore, Chesapeake & Atlantic Railway Co. pays a lump sum of $250 per year in lieu of wharfage.

(*b*) The nearest railroad is at West Point, Va., about 40 miles distant.

(*c*) An unimproved wagon road leads to Mathews, Va.

(*e*) The Cricket Hill Wharf, with about 1,200 feet of water front, is owned and operated by Marchant, Trader & Travers. There is

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

person or firm in this vicinity engaged regularly in the transfer and delivery business. Service of the most distant patron requires a haul of about 5 miles. A flatboat rope ferry is operated between Cricket Hill and Gwynns Island by the Gwynns Island Ferry Co. This boat makes about 1,200 round trips per year. For a one-horse vehicle and driver the rate is 25 cents per round trip; for a double team, vehicle, and driver the rate is 50 cents per round trip.

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15. AQUIA CREEK, VA.

(*a*) Aquia Creek is located wholly within the limits of Stafford County, Va., flows in a southeasterly direction, and enters the Potomac River from the right bank at about 41 miles below Washington, D. C.

The only port on the Aquia Creek where shipping is regularly carried on is at Coal Landing, on the right bank of the creek, about 7 miles above its mouth. There is no wharf here but the remains of several bulkheads, timber, and stone. Just above the landing is a trestle built to the water's edge with an industrial steel track.

This is at present not in service, but was used up to two years ago for the loading into vessels of iron pyrites drawn from the mines in cars drawn by small locomotives.

Coal Landing receives about 600 dockages per year. No steamboats come here.

The outgoing freight consists of about 10,000,000 feet of lumber, 50,000 ties, 2,000 cords of wood, and 1,000 cedar posts per year.

The incoming freight consists of merchandise, fertilizer, farming implements, and building material, and will amount to about $25,000 in value per year.

All loading and unloading is done by hand or with large skeleton wheelbarrows across planks laid from shore to the gunwales of the vessels.

This landing is open to use by all water carriers on equal terms.

The wharfage rates are as follows:

Wood, 6¼ cents per cord.
Lumber, 10 cents per thousand feet.
Ties, one-half cent each.
Cedar posts, one-half cent each.
Incoming freight, no charge.

(*b*) The Richmond, Fredericksburg & Potomac Railroad crosses the creek on a trestle bridge provided with a 30-foot draw at about 1½ miles above its mouth. There is no physical connection with the creek and no mutual contract for the interchange of traffic.

(*c*) An unimproved wagon road connects Coal Landing with the Alexandria-Fredericksburg (telegraph) road.

(*d*) A bulkhead wharf or landing should be built at Coal Landing at the site of the present shore landing. This should be at least 100 feet long.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*e*) The ownership of water front used for shipping on the Aquia Creek at Coal Landing is as follows:

W. S. Towson, about 400 feet.
Wesley, Uriah, and C. W. Knight, about 1,200 feet.
Gill & Gill, about 300 feet.
Stafford County, Va., about 30 feet (end of road).

Coal Landing is patronized by about 12 country stores and 10 sawmills. All delivery and transfer is done by the patrons themselves with surplus farm teams.

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16. LOWER MACHODOC CREEK, VA.

(*a*) The Lower Machodoc Creek is a tidal estuary on the right bank of the Potomac River, about 85 miles below Washington, D. C. It has a navigable length of about 4 miles.

There are two ports on the Lower Machodoc Creek, each having a single wooden pile wharf of the usual pattern; each, also, has a small warehouse and one small oyster-hoisting derrick. These wharves are in fair condition.

Both wharves, Edgewater and Olverson's, are regular stops for the steamers of the Potomac & Chesapeake Steamboat Co. There is some shipping of ties and wood from the shore. The two wharves of the creek receive about 1,500 dockages per year, and about [illegible] passengers per year arrive and depart.

The outgoing shipments consist largely of oysters, fish, poultry and other farm products and will amount to about 1,050 tons per year.

The incoming freight consists principally of fertilizer, merchandise, and farm implements and will amount to about 3,360 tons per year.

All loading and unloading is done by hand, with hand trucks over gangplank or with the small oyster hoists mentioned above.

Both these wharves are open to use by all water carriers on equal terms. The wharfage rate, including handling and temporary storage, is 10 per cent of the transportation charge.

(*b*) There is no physical connection with any railroad and no contract for the interchange of traffic.

(*c*) There are no improved highways leading to the wharves on this creek.

(*d*) It is believed that the terminal facilities as they now exist are ample for the present traffic and, so far as can be foreseen, for the traffic of the future.

(*e*) Both wharves on the Lower Machodoc are owned by individuals of the community and are operated as public wharves.

OLVERSON'S WHARF.

(*a*) Olverson's Wharf is located in Westmoreland County, Va., on the right bank of the Lower Machodoc Creek, about 3 miles above its mouth.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

The wharf is a pile structure, in fair condition. The river end is 48 feet wide; the pier is 20 feet wide; and its length over all is 93 feet. There is a warehouse 52 by 16 feet and a small hoisting derrick on the wharf.

This wharf receives about 300 dockages per year, and about 300 passengers arrive and depart per year.

The incoming freight is principally general merchandise and fertilizer and will amount to about 4,500 pieces per year.

The outgoing freight consists largely of farm products, fruit, fish, and oysters and will amount to about 3,000 pieces per year.

This wharf is open to use by all water carriers on equal terms. The wharfage rate, not including handling charges, is 5 per cent of the transportation charge. The stevedore and temporary storage charge is also 5 per cent of the transportation charge.

(*b*) The nearest railroad is at Fredericksburg, Va., 70 miles distant.

(*c*) An unimproved wagon road leads to Kinsale, Va.

(*e*) This wharf, with about one-half mile of water front, is owned by Mr. J. B. Olverson. Its gross revenue is about $120 per year, about $105 of which is paid by the Potomac & Chesapeake Steamboat Co., whose boats stop here regularly.

EDGEWATER, VA.

(*a*) Edgewater is located in Westmoreland County, Va., on the left bank of the Lower Machodoc Creek, about 2 miles from its mouth.

Its wharf is a substantial P-shaped pile structure with a length of 132 feet over all, a wharf end 42 by 24 feet, and a pier 10 feet wide. A warehouse 26 by 10 feet stands on one corner of the wharf. Its piles are not braced. There is one small hoisting derrick on the wharf for hoisting fish and oysters.

This wharf receives about four dockages per day (average), and an average of about three passengers arrive and depart each day.

The incoming freight consists of fertilizer, merchandise, and farm implements and will amount to about 7,500 pieces per year. The outgoing freight is principally oysters, fish, poultry, and eggs and will amount to about 7,500 pieces per year.

All loading and unloading is done by hand or with hand trucks over a gangplank.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charge.

(*b*) The nearest railroad is at Fredericksburg, Va., about 75 miles distant.

(*c*) An unimproved wagon road leads to Eureka, Va.

(*e*) This wharf, with about one-fourth mile of water front, is owned and operated by C. E. Daiger. It is a regular stopping place for the Potomac & Chesapeake Co.'s steamers.

(*a*) General location and description
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

17. BRETON BAY, MD.

(*a*) Breton Bay is a tidal estuary of the Potomac River located in Maryland about 80 miles below Washington, D. C.

It has two ports, Leonardtown, Md., and Abells, Md. The steamboat wharves, one at each of the above places, are pile structures in fair condition. In addition to its steamboat wharf Leonardtown has the remains of an old landing, over which considerable material is shipped.

The incoming freight consists principally of merchandise, grain, fertilizer, and farm machinery, and will amount to about 9,000 tons per year.

The outgoing freight is principally tobacco, wheat, live stock, and oysters and will amount to about 5,000 tons per year. About 1,[illegible] landings are made per year for the purpose of receiving or discharging cargo.

The number of passengers arriving and departing is about 2,[illegible] per year.

All loading and unloading is done by hand or with hand trucks over a gangplank. All the wharves on Breton Bay are open to use of all water carriers. The usual wharfage rate is 10 per cent of the transportation charge.

(*b*) There is no physical connection with railroads and no contract for the interchange of traffic.

(*c*) Unimproved wagon roads lead to all the wharves of Breton Bay. A macadam road connects Leonardtown, Md., with Mechanicsville, Md., but is not extended to the wharf at Leonardtown.

(*d*) The terminals are believed to be ample in number for the amount of traffic involved.

(*e*) Developed water-front property on Breton Bay is owned by St. Marys County, by the Leonardtown Joint Stock Co., and by Mr. C. B. Greenwell. As a rule all transfer and delivery is made by the patrons of the wharf (consignee and shipper).

LEONARDTOWN, MD.

(*a*) Leonardtown is a town of about 850 inhabitants, located in St. Marys County, Md., at the head of Breton Bay.

The steamboat wharf is an irregular-shaped pile structure; the wharf end is 51 feet wide, the pier is 16 feet wide, and the length is 136 feet over all. The wharf is in fair condition. A large warehouse and open shed are on the wharf, and a store and barroom are alongside the pier.

There are no mechanical handling devices on this wharf.

This wharf receives about 13 dockages per week.

The number of passengers crossing the wharf will average about 45 per week.

The incoming freight consists principally of merchandise, grain and fertilizer, while the greater part of the outgoing shipments are tobacco, wheat, cattle, and oysters.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

Loading and unloading is done with hand trucks over gangplanks.

This wharf is open to use by all water carriers. The Maryland, Delaware & Virginia Railway Co. pays a wharfage rate of 10 per cent of transportation charges; other small shippers are charged 5 per cent.

The remains of an old public landing is located a short distance above the steamboat landing.

This landing is used as a shipping point for ties, cordwood, and lumber. It receives about 16 dockages per year. Much of the material shipped from this wharf is transshipped from lighters, which are loaded about 200 yards above from the shore.

(*b*) The nearest railroad is at Mechanicsville, Md., 16 miles distant.

(*c*) An unimproved wagon road leads from the wharf to the town. A macadam road leads from Leonardtown to Mechanicsville.

(*e*) The steamboat wharf, with about 110 feet of water front, is owned by the Leonardtown Joint Stock Co., composed principally of citizens of Leonardtown. The gross revenue of the wharf is about $1,275 per year.

The old landing belongs to Enoch B. Abell and Laura W. Holmes, on about 40 feet of water front belonging to the county.

The steamboat wharf has telephonic communication with the town.

Augustus Holley is engaged in the transfer and delivery business. His prices are about 40 cents to 50 cents per load.

ABELL'S WHARF.

(*a*) Abell's Wharf is located in St. Marys County, Md., on the left side of the Breton Bay, about 4 miles below Leonardtown.

Its wharf is a T-shaped pile structure, with a wharf end 35 by 29 feet; a pier 15 feet wide and length over all of 126 feet. A light wooden oyster derrick is located on the rear side of the wharf end, and a warehouse 20 by 30 feet, and a small stock pen are located at the shore end of the pier. The Maryland, Delaware & Virginia Railway Co.'s steamboats stop here regularly. The incoming freight consists of merchandise, fertilizer, farm machinery, and household goods, and will amount to about 36 tons per week. The outgoing freight consists largely of poultry, live stock, tobacco, and wheat, and will average about 39 pieces per week. This wharf receives about six dockages per week, not including launches and small boats. It is estimated that an average of six passengers per week arrive and depart. All loading and unloading is done with hand trucks over a gangplank. The wharf is open to use by all water carriers. The steamboat company pays a wharfage rate of 10 per cent of the transportation charges. No wharfage has been collected from other patrons.

(*b*) The nearest railroad is at Mechanicsville, Md., about 20 miles distant.

(*c*) An unimproved wagon road leads to Leonardtown, Md.

(*e*) The wharf at Abell's, together with about 1 mile of water front, is owned and operated by Mr. C. B. Greenwell. The gross revenue of the wharf is about $400 per year.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

There are no persons or firms in this vicinity engaged exclusi in the transfer and delivery business.

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18. CARTERS CREEK, VA.

(*a*) Carters Creek is a tidal estuary of the Rappahannock Riv located in Lancaster County, Va., about 95 miles below Frederick burg.

It has three ports and six wharves over which traffic is regula carried. Five out of six of these are wooden-pile structures, ge erally in fair condition.

These wharves receive about 1,884 dockages per year. About 3.7 passengers per year arrive and depart.

The outgoing shipments consist principally of oysters, brick, gas line and oil, and fish scrap, and will amount to about 9,163 tons pe year. The incoming freight consists largely of coal, merchan gasoline and oil, and raw fish, and will amount to about 28,559 to per year.

Fish are unloaded by large fish elevators or bucket convey which are lowered into the holds of the vessels. All other load and unloading is done by hand or with hand trucks over gangplank

The steamboat wharf at Irvington is the only terminal on Car Creek that is open to use by all water carriers on equal terms. T wharfage rate at this wharf is 10 per cent of transportation char for steamboat freight, and 5 cents per ton for vessel freight.

(*b*) The nearest railroad to Carters Creek is at West Point, Va. about 28 miles distant, and across two large rivers.

(*c*) The wharves of Carters Creek are reached from the land sid by unimproved wagon roads.

(*d*) The terminals of Carters Creek are ample in number for t present traffic and for the future traffic, so far as it can at present b foreseen.

(*e*) None of the wharves of Carters Creek are owned outright b the steamboat company which operates in that stream. One wha is controlled by the steamboat company under lease.

The Standard Oil Co. has exclusive control of a wharf at Wee and the Texas Oil Co. leases landing privileges and right of w at Gumby's Wharf in Irvington.

There is no person or firm in this vicinity engaged regularly in t transfer and delivery business.

IRVINGTON, VA.

(*a*) Irvington is located in Lancaster County, Va., on the rig bank of Carters Creek, about 1 mile above the mouth of the creek

It has two wharves. The steamboat wharf is a wooden pile str ture in fair condition. It is irregular in shape and presents a riv face 60 feet long. The pier is 10 feet wide. There is a one-sto

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

frame warehouse and two oyster derricks. A wooden track capped with strap-iron runs along the pier. The piles are sparsely placed and not braced. There is a wooden handrail on one side of the pier.

The gasoline wharf is a small wooden pile structure.

The steamboat wharf receives about 622 dockages per year. About 2,500 passengers per year arrive and depart.

The outgoing freight is as follows:

Oysters, 187,500 gallons per year.
Truck, 2,000 packages per year.
Stock, 200 head per year.

The incoming freight is as follows:

Coal, 150 tons per year.
Merchandise, 400 tons per year.

The gasoline wharf receives about 30 dockages per year.

The outgoing shipments are as follows:

Oil and gasoline, 75,000 gallons per year.
Oysters, 31,000 gallons per year.
Tomatoes, 5,500 cases per year.
Sweet potatoes, 400 cases per year.

The incoming shipments are as follows:

Oil and gasoline, 80,000 gallons per year.
Sweet potatoes, 200 barrels per year.
Tomatoes, 14,000 bushels per year.
Oysters, 45,000 bushels per year.

All loading and unloading is done by hand, with oyster derricks or with hand trucks over a gang plank.

The steamboat wharf is open to use by all water carriers on equal terms. The steamboat company pays a wharfage rate of 10 per cent of the transportation charge, and is given the right of way. Other persons pay a wharfage rate of 5 cents per ton.

The gasoline wharf is closed to all water carriers, except those engaged in the transaction of business with F. A. Gumby & Son, or with the Texas Oil Co.

(*b*) The nearest railroad is at West Point, Va., about 30 miles distant and across two large rivers.

(*c*) An unimproved wagon road leads to Whitestone, Va.

(*e*) The steamboat wharf is owned by Mr. W. L. Messick, on water frontage owned by Mr. C. H. Willing. Its gross revenue is about $1,000 per year.

The gasoline wharf, with about 100 feet of water front, is owned by F. A. Gumby & Son. The Texas Oil Co. has a five-year lease on the right to land at this wharf. This lease expires in two years. The consideration involved is $50 per year.

There is no person or firm at Irvington regularly engaged in the transfer and delivery business. Service of the most distant patron requires a haul of about 2½ miles.

(b) Physical connection between water terminals and railroads.
(c) Connection with highways.
(e) Ownership of water front.

FISH FACTORY WHARF.

(*a*) The Fish Factory Wharf is located in Lancaster County, Va., on the right bank of Carters Creek, about 600 yards above its mouth.

Its wharf consists of two wooden pile piers in very poor condition, with a slip in between. There is a vertical pile bulkhead at the shore. The larger pier is 350 feet long and 38 feet wide; the smaller is 101 feet long and 16 feet wide. The slip is 30 feet wide.

This wharf receives about 558 dockages per year. The outgoing freight is as follows:

Fish scrap, 2,700 tons per year.
Oil, 1,750 barrels per year.

The incoming freight is as follows:

Fish, 330,000 bushels per year.
Coal, 5,000 tons per year.

Fish are unloaded with one large bucket conveyor, which is dropped into the hold of the vessel and raises the fish into tanks in the factory building.

This wharf is closed to all water carriers except those engaged in the transaction of business with the Carters Creek Fish & Guano Co.

(*b*) The nearest railroad is at West Point, Va., about 28 miles distant, across two large rivers.

(*c*) An unimproved wagon road leads to Irvington, Va.

(*e*) This wharf, with about 275 feet of water front, is owned and operated by the Carters Creek Fish & Guano Co.

Just above the fish factory wharf is a light pile wharf in very poor condition. There is one oyster derrick on this wharf. It is owned by the Irving Oyster Co., on about 100 feet of water front, leased from the L. H. Irving estate, and is at present out of use.

WEEMS, VA.

(*a*) Weems is located in Lancaster County, Va., on the right bank of Carters Creek at the point where it empties into the Rappahannock River.

Its main wharf is a wooden pile structure in good condition. It is irregular in shape, presenting a river face 66 feet long. There are four oyster derricks and one hand-power winch. Two warehouses are on the wharf. In addition to the main or steamboat wharf there is a small wooden pile gasoline landing, with a total length of 414 feet and a width of 4 and 5 feet. One small derrick is at the end of this wharf and a substantial warehouse 51 by 25 feet is about half way to shore from the wharf end. The brick wharf, above the main wharf, is a solid-fill bulkhead landing.

The main wharf receives about 674 dockages per year. About 1,[illegible] passengers per year arrive and depart.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

The outgoing freight is as follows:

Oysters, 125,000 gallons per year.
Canned goods, 26,000 cases per year.
Brick, 28,000 per year.
Crabs, 3,000 barrels per year.
Soft crabs, 500 boxes per year.
Miscellaneous, 715 packages per year.

The incoming freight consists principally of merchandise, and will amount to about 450 tons per year. About 1,000,000 bricks are shipped out per year, and about 200 tons of coal are received at the brick wharf. About 1,000 barrels of oil and gasoline are received per year at the gasoline landing and about the same amount issued out.

All loading and unloading is done by hand or with hand trucks over a gangplank.

None of the wharves at Weems are open to use by all water carriers on equal terms. The main wharf is restricted to the use of the Maryland, Delaware & Virginia Railway Co.; the gasoline wharf is restricted to the use of the Standard Oil Co.; and the brick wharf is restricted to the use of the Buck's brickyard.

(*b*) The nearest railroad is at West Point, Va., about 28 miles distant across two large rivers.

(*c*) An unimproved wagon road leads to Irvington, Va.

(*e*) The steamboat wharf and gasoline landing are owned by Damron Bros. The former is leased to the Maryland, Delaware & Virginia Railway Co., which pays the owners 10 per cent of transportation charges for freight and passengers. The gasoline landing is rented to the Standard Oil Co. for $5 per month.

No person or firm in this vicinity is regularly engaged in the transfer and delivery business.

Service of the most distant patron requires a haul of about 3 miles.

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19. POTOMAC RIVER BELOW WASHINGTON.

(*a*) The Potomac River rises in West Virginia in the Allegheny Mountains and, flowing in a southeasterly direction 410 miles, empties into Chesapeake Bay. Its length below Washington is 110 miles.

It has, not including Washington, Alexandria, Mount Vernon, and Morgantown, which have been separately reported on, 29 ports and 31 wharves. The wharf at Quantico, Va., is a large solid-fill T-shaped bulkhead pier, and Dent's Wharf in Maryland is a combination pile and crib wharf. All the rest are wooden pile structures of the ordinary type. Many are in poor condition and the majority are lightly constructed.

These wharves receive about 33,340 dockages per year; about 306,379 passengers per year arrive and depart.

The outgoing freight consists largely of stock, fish, farm products, and fruit, and will amount to about 50,020 tons per year.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

The incoming freight consists largely of fertilizer, farm implements, merchandise, and household goods, and will amount to about 91,609 tons per year.

At Indianhead, Md., loading and unloading is done with the modern traveling steam cranes. At Fort Washington, Md., and Fort Hunt, Va., considerable handling is done with derricks; otherwise almost all loading and unloading is done by hand or with hand trucks over gang planks.

Eleven of the 31 wharves on the lower Potomac River are open for use by all water carriers on equal terms. Of these, no wharfage is collected at the Government Wharf at Bryants Point and the Cherry Hill Wharf. At the other 9, the wharfage rates are as follows:

Steamboat freight, 10 per cent of transportation charges.
Wood, 10 cents per cord.
Ties, one-half cent each.

(*b*) The Washington & Mount Vernon Electric Railroad and the Washington-Southern steam railroad pass down roughly parallel to the Potomac River on the Virginia side. At places, these railroads run right along the bank of the stream, but neither has any physical connection with any lower Potomac terminal, and there is no mutual contract for the interchange of traffic. The Popes Creek branch of the Pennsylvania Railroad and its connecting line to Mechanicsville, Md., passes down the Maryland side at distances from the river of from 0 mile to 16 miles. The Popes Creek line comes to the water's edge at Popes Creek, Md., but there is no water traffic at this point except a small launch which meets trains and delivers mail to Colonial Beach, Va.

(*c*) At the United States reservations, improved wagon roads lead to all wharves. All other highways are unimproved and many of them are in bad condition. Colonial Beach has a marginal street.

(*d*) The wharves on the Potomac River below Washington are ample in number for the present traffic and for the future traffic so far as it can now be foreseen. Several of those now existing should be rebuilt.

(*e*) Of the 29 ports on the Potomac below Washington. 9 are owned by the United States Government. So far as could be ascertained, the only railroad-owned frontage is that at Popes Creek, Md., owned by the Pennsylvania Railroad. This is only the width of the right of way, and is not used commercially.

The Mount Vernon & Marshall Hall Steamboat Co. owns the wharf at Marshall Hall. The Colonial Beach Co. owns the excursion wharf and 1,195 feet of water front at Colonial Beach, and the Potomac & Chesapeake Steamboat Co. owns the wharf at River View. The wharf at Cherry Hill is owned by the community. The freight wharf at Colonial Beach, with 8,660 feet of water front, is owned by the taxpayers of the town, but is held by the members of the town council as trustees. The Potomac & Chesapeake Steamboat Co. controls four wharves by lease. As a rule, delivery and transfer is made

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

by the patrons of the various wharves. At Colonial Beach there are four licensed expressmen, and at Glymont there are two men who are regularly engaged in hauling between that point and Indianhead.

GIESBORO POINT, D. C.

(*a*) Giesboro Point is located in the District of Columbia, on the left bank of the Potomac River, about 2 miles below Washington. Its wharf is a pile structure in good condition. It is a T in shape. Its wharf end is 162 by 77 feet. Its pier is 30 feet wide and its length over all is 270 feet. On the outer end the piles are driven so close together as to form sheathing. A standard-gauge steel railway track runs out to the end of the wharf. There is a small one-story frame waiting room on the wharf.

This wharf receives about 1,800 dockages per year. About 24,000 passengers per year arrive and depart. About 77 tons of armor-piercing shells are shipped out per year. The incoming freight is as follows:

Railroad ties, 70 tons per year.
Cordwood, 24 tons per year.

Steel and ordnance is loaded and unloaded by means of a Dodge traveling 15-ton steam crane.

This wharf is closed to all water carriers except those engaged in in the transaction of business with the Washington Steel & Ordnance Co.

(*b*) The steam crane track on the wharf is directly connected as a spur to the Baltimore & Ohio Railroad through the buildings of the steel company, but this connection is not utilized for the interchange of traffic.

(*c*) A cinder walk leads from this wharf to the steel factory.

BELLEVUE, D. C.

(*a*) Bellevue is located in the District of Columbia, on the left bank of the Potomac River, about 3 miles below Washington. Its wharf is a light pile structure in fair condition. There is one hand-power revolving crane with a capacity of 1 ton and a lift of 15 feet. An industrial track, 3-foot gauge, leads along the wharf and into two brick magazines on shore. The wharf is a reversed P in shape, having a wharf end 29 by 32 feet, a pier 15 feet wide, and a length over all of 166 feet.

This wharf receives about three dockages per year. There are no outshipments. The receipts consist of about 18 tons of records per year.

This wharf is closed to all water carriers except the United States Navy.

(*b*) The Baltimore & Ohio Railroad is about 900 feet from the wharf, but there is no physical connection between the two, and no mutual contract for the interchange of traffic.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*e*) This wharf is owned by the United States Government and is controlled by the Navy Department for magazine purposes. Transfer from the end of the wharf to the magazine is made by three steel flat cars running on the industrial track. These magazines are attractive brick buildings 30 by 150 feet, and with concrete floors. They are at present used for the storage of records.

SHEPHERDS, D. C.

(*a*) Shepherds is located in the District of Columbia, on the left bank of the Potomac River, about 5 miles below Washington. Its wharf is an old wooden pile structure with railroad ferry slip and railroad trestle. There are three wooden chutes projecting from the trestle for the purpose of loading bulk materials from railroad cars into vessels. The rails have been removed from the wharf and trestle. The whole structure is rapidly going to decay, and has not been in use for about three years.

WASHINGTON PARK, MD.

(*a*) Washington Park is located in Prince George County, Md., on the left bank of the Potomac River, about 7 miles below Washington. Its wharf is a wooden pile structure. It is a reversed P in shape, with a wharf end about 50 by 30 feet, a pier 12 feet wide, and a length over all of about 300 feet.

FORT FOOTE, MD.

(*a*) Fort Foote is located in Prince George County, Md., on the left bank of the Potomac River, about 7 miles below Washington. Its wharf is a wooden pile structure in fair condition. It is a T in shape, having a wharf end 51 by 48 feet, a pier 16 feet wide, and a length over all of 158 feet.

This wharf is used in connection with Fort Foote, which is an ungarrisoned military reservation used for instruction and drill by the engineer troops at Washington Barracks.

All loading and unloading is done by hand.

It is closed to all water carriers except those engaged in the transaction of business with the War Department.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) A wagon road leads from this wharf to the old fort and to the present camp ground.

(*e*) This wharf is owned by the United States Government.

RIVER VIEW, MD.

(*a*) River View is located in Prince George County, Md., on the left bank of the Potomac River about 8 miles below Washington.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Its wharf is a light wooden-pile structure in good condition. It is a T in shape, having a wharf end 92 by 26 feet, a pier 28 feet wide, and a length over all of 140 feet. There are no mechanical devices.

River View is a pleasure resort, and the principal traffic of its wharf is passenger traffic.

(*b*) There is no physical connection with any railroad.

(*c*) There is no wagon road leading to this wharf.

FORT WASHINGTON, MD.

(*a*) Fort Washington, Md., is located in Prince George County, Md., on the left bank of the Potomac River about 10 miles below Washington. It has two wharves. The mine wharf is a wooden capped pile structure in good condition. A 3-foot gauge industrial track runs along the pier and into the torpedo storehouse. There is a turntable at the end of the wharf, from which cars may be taken along the river end into the torpedo storehouses on each side or along the pier toward the shore. This railway connects at the shore end of the wharf with an inclined cable railway up a steep hill. There are three wooden stiff-leg derricks on the wharf. There are four frame houses on the wharf, one for the hoisting engine, a small house for launch supplies, and two torpedo storehouses.

There are no outshipments from this wharf. The incoming freight consists of construction materials and will amount to about 600 tons per year.

Loading and unloading is done with the derricks mentioned above.

The quartermaster's wharf is an irregular shaped wooden pile structure at the outer end of a solid fill bulkhead pier. There is one small boathouse and waiting room on the wharf, and a lighthouse just in rear of it. One light jib-crane derrick is on the wharf with a 4-horsepower hoisting engine.

This wharf receives about 3,600 dockages per year. About 16,500 passengers per year arrive and depart.

The incoming freight consists principally of coal, quartermaster supplies, ordnance and subsistence stores, and will amount to about 5,000 tons per year.

All loading and unloading is done by hand and with the small derrick mentioned above.

This wharf is closed to all water carriers except those engaged in the transaction of business, or those who have permission from the authorities of the War Department.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) Both of the Fort Washington wharves are connected with the Army post proper by macadam roads.

(*e*) These wharves, with about 9,000 feet of water front, are owned by the United States. Delivery and transfer is made by wagon.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

FORT HUNT, VA.

(*a*) Fort Hunt is located in Fairfax County, Va., on the right bank of the Potomac River about 10 miles below Washington. Its wharf is a wooden-pile structure in good condition. It is irregular in shape with a river face 59 feet long and a pier 20 feet wide. There is a boathouse, waiting room, and small freight room. The wharf is lighted with electricity.

This wharf receives about 1,460 dockages per year. About 18,250 passengers per year arrive and depart. The incoming freight consists of post supplies and will amount to about 365 tons per year.

All loading and unloading is done by hand, except that coal is unloaded by a movable jib crane with a 5-horsepower gasoline engine.

This wharf is closed to all water carriers except those engaged in the transaction of business with the War Department.

(*b*) The nearest railroad is at Hunter Station, Va., about 1 mile distant.

(*c*) An unimproved wagon road leads to the post of Fort Hunt proper.

(*e*) This wharf, with about 4,100 feet of water front, is owned by the United States.

BRYANTS POINT, MD.

(*a*) Bryants Point is located in Prince George County, Md., on the left bank of the Potomac River, about 12 miles below Washington. Its wharf is a small light pile structure, in good condition. It is a P in shape, with a wharf end 30 by 21 feet, a pier 13 feet wide, and a length over all of 171 feet.

This wharf receives about 1,095 dockages per year. About 1,040 passengers per year arrive and depart.

The outgoing freight consists principally of lambs, calves, cattle, and fruit, and will amount to about 500 tons per year. The incoming freight consists largely of feed and agricultural implements, and will amount to about 500 tons per year. Loading and unloading is done by hand.

This wharf is open to use by all water carriers. No wharfage or other charges are made.

(*b*) The nearest railroad is the Popes Creek branch of the Pennsylvania Railroad, about 15 miles distant.

(*c*) An unimproved wagon road leads into the surrounding country.

(*e*) This wharf is owned by the United States Government, and is controlled by the Bureau of Fisheries and used as a fish hatchery.

MARSHALL HALL, MD.

(*a*) Marshall Hall is a pleasure resort located in Charles County, Md., on the left bank of the Potomac River, about 15 miles below Washington. Its wharf is a wooden-pile structure in good condition. It is irregular in shape, with a river end 57 feet long, a pier 31 feet wide, and a length over all of 237 feet. The wharf is lighted with gas, and there is a small warehouse about 22 by 12 feet.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

This wharf receives about 3,100 dockages per year. About 3,650 passengers per year, not including excursionists, arrive and depart. The outgoing freight consists largely of stock, fish, tobacco, and fruit, and will amount to about 5,840 pieces per year. The incoming freight consists largely of household goods, farm implements, hay, and feed, and will amount to about 5,475 pieces per year.

All loading and unloading is done with hand trucks over gangplanks.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charge.

(*b*) The nearest railroad is the Popes Creek branch of the Pennsylvania Railroad, about 12 miles distant.

(*c*) An unimproved wagon road leads to Pomonkey, Md.

(*e*) This wharf, with about a half-mile of water front, is owned and operated by the Mount Vernon & Marshall Hall Steamboat Co. There is no person or firm in this vicinity regularly engaged in the transfer or delivery business.

GUNSTON WHARF.

(*a*) Gunston Wharf is located in Fairfax County, Va., on the right bank of the Potomac River, about 18 miles below Washington. This wharf is a new light pole structure. It is a P in shape, with a wharf end of 32 by 42 feet, a pier 11 feet wide, and a length over all of 380 feet. There is a small warehouse on the wharf. This wharf receives about 730 dockages per year. About 730 passengers per year arrive and depart.

The outgoing freight consists principally of fish, fruit, chickens, and farm products, and will amount to about 1,095 pieces per year.

Very little freight is received.

Loading and unloading is done with hand trucks over a gangplank.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charges.

(*b*) The nearest railroad is at Lorton, Va., about 6 miles distant.

(*c*) A very poor unimproved wagon road leads to Lorton.

(*e*) This wharf, with about 400 feet of shore line, is owned and operated by Mr. Lindsey Morrison. There is no person or firm in this vicinity regularly engaged in the transfer or delivery business.

M'GHIESPORT, MD.

(*a*) McGhiesport is located in Charles County, Md., on the left bank of the Potomac River, about 20 miles below Washington. Its wharf is a light pole landing 253 feet long and 5 feet wide. A wooden track, 2-foot gauge, runs the full length of the wharf, and a flat car is operated on this track.

This wharf receives about 900 launch dockages per year. The principal article of import is lumber.

Loading and unloading is done by hand.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*b*) The nearest railroad is the Popes Creek branch of the Pennsylvania Railroad, about 12 miles distant.

(*c*) An unimproved wagon road leads to Marshall Hall.

(*e*) This wharf, with about three-fourths mile of water front, is owned by Mr. L. J. McGhie.

GLYMONT, MD.

(*a*) Glymont is located in Charles County, Md., on the left bank of the Potomac River, about 21 miles below Washington. Its wharf is a pile structure with a crib outer end. It is old and in very poor condition. Its river end is 53 feet long, its pier is 21 feet wide, and its length over all is 183 feet. A warehouse covers the entire width of wharf.

This wharf receives about 1,300 dockages per year. About 3,653 passengers per year arrive and depart. All loading and unloading is done with hand trucks over a gangplank.

This wharf is closed to all water carriers except the Potomac & Chesapeake Steamboat Co. and the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at White Plains, Md., about 14 miles distant.

(*c*) An unimproved wagon road leads to La Plata, Md.

(*e*) This wharf, with about 2 miles of water front, is owned by Mr. Sigel Brown and is leased to the Potomac & Chesapeake Steamboat Co. Mr. Mason and Mr. Carter, of Glymont, are engaged in the transfer and delivery business. They use farm wagons and charge $1 and $1.50 per load from Glymont to Indian Head.

INDIAN HEAD, MD.

(*a*) Indian Head is located in Charles County, Md., about 23 miles below Washington. Its wharf is a pile structure with steel sheathing. It is a substantial structure and in good condition, and consists of a central pier with a slip on each side. Its greatest width is 90 feet. A small artificial harbor lies just below the wharf, its downstream side being protected by a stone breakwater capped with concrete. Three standard-gauge railroad tracks run out on the wharf. There is a tidal bridge for the passage of heavily laden freight cars from barges to the wharf.

This wharf receives about 1,718 dockages per year. About 25,104 passengers per year arrive and depart. The outgoing freight consists principally of powder, guns, and ordnance supplies, and will amount to about 19,412 tons per year. The incoming freight consists of powder ingredients, guns, carriages, and ordnance supplies and will amount to about 69,445 tons per year. Powder and powder materials are received and shipped in ordinary railroad freight cars without unloading. Other materials are loaded and unloaded by means of five cranes, which run on the railroad tracks. Three of these are heavy-type traveling steam cranes of 20, 40, and 70 tons capacity;

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

the other two are sand-digger cranes of 1 and 1½ tons capacity at 25-foot radius.

This wharf is closed to all water carriers except the United States Navy.

(*b*) The railroad tracks on the wharf connect, through the proving grounds, with the powder-factory track. There are about 8 miles of track. A steam locomotive receives the cars and hauls them about one-eighth of a mile and then turns them over to an electric locomotive, which runs to the powder factory. These railroad lines are owned by the Government and have no connection with any commercial line.

(*e*) This wharf is owned by the United States and is controlled by the Navy Department, and used as an ordnance-proving ground and powder factory.

CHERRY HILL, VA.

(*a*) Cherry Hill is located in Prince William County, Va., on the right bank of the Potomac River about 27 miles below Washington. Its wharf is a new pile structure in good condition. It has a river end 14 feet long, a pier 6 feet wide, and length over all of 325 feet. The wharf is protected against ice by a line of pile clusters.

This wharf receives about 3,900 dockages per year, including launches and rowboats. About 3,650 passengers per year arrive and depart. Its only freight traffic is that connected with the marine rifle range across the river.

All loading and unloading is done by hand.

This wharf is open to all water carriers. No wharfage or other charges are made.

(*b*) A spur from the Washington Southern Railway comes to within 100 feet of this wharf, but there is no connection between the two, and no mutual contract for the interchange of traffic.

(*c*) An unimproved wagon road leads from the wharf to the town of Cherry Hill.

(*e*) This wharf is owned by the community, having been built by subscription, on about one-fourth mile of shore line belonging to the Washington Fertilizer Co.

STUMP NECK, MD.

(*a*) Stump Neck is located in Charles County, Md., on the left bank of the Potomac River, about 29 miles below Washington. Its wharf is a frail pile structure in poor condition. It is a T in shape, with a wharf end 30 by 13 feet, a pier 11 feet wide, and a length over all of 193 feet.

This wharf receives about 1,800 dockages per year. About 2,000 passengers per year arrive and depart. There is no outgoing freight. The incoming freight consists of camp supplies and ammunition.

All loading and unloading is done by hand.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

The wharf is closed to all water carriers except those engaged in the transaction of business with the United States Marine Corps.

(*b*) The nearest railroad is the Popes Creek branch of the Pennsylvania Railroad, about 22 miles distant.

(*c*) A gravel road leads to the rifle range camp.

(*e*) This wharf lies on a reservation containing 1,200 acres, owned by the United States, and used as a rifle range for the United States Marine Corps. All transfer and delivery is done with wagons.

BARRON'S SIDING.

(*a*) Barron's Siding is located in Prince William County, Va., on the right bank of the Potomac River, about 30 miles below Washington. Its wharf is an old pile structure in poor condition. It is rectangular in shape, 193 by 60 feet, with two ramps on the south side to expedite the wheeling of wheelbarrows onto scows. A 3-foot gauge industrial railroad runs the full length of the wharf. On the south side is a slip formed between the wharf on one side and a rock breakwater on the other. This breakwater is parallel to the wharf at its outer end, but joins it at its shore end. Its outer end is constructed of piles driven in contact, and its middle and inner ends consist of large cribs made of poles and filled with stone. There is a small frame house at the shore end of the wharf. This wharf receives about 144 dockages per year.

The outgoing freight consists of about 15,600 tons of iron pyrites per year. There are no receipts. Loading is done with wheelbarrows.

This wharf is closed to all water carriers except those engaged in the transaction of business with the Cabin Branch Mining Co. (Inc.).

(*b*) The industrial railroad on the wharf runs to the pyrites mine, about 6 miles distant. It has no connection with any other railroad.

(*c*) No highway leads to this wharf.

(*e*) Barron's Siding wharf, with about 3 miles of shore line, is owned by the Cabin Branch Mining Co.

QUANTICO.

(*a*) Quantico is located in Prince William County, Va., on the right bank of the Potomac River, about 31 miles below Washington. Its wharf is a large solid-fill structure just being completed. It consists of a pile bulkhead capped with planks. Inside of the bulkhead is close plank sheathing filled with riprap rock and surfaced with clay. It is a T in shape, having a river end 163 feet long, a pier [illegible] feet wide, and a length over all of 590 feet. There is to be a large warehouse on the wharf, but this has not yet been erected.

This wharf receives about 1,460 dockages per year. About [illegible] passengers per year arrive and depart.

The outgoing freight consists principally of ties, lumber, farm products, and fish, and will amount to about 1,825 tons per year. There are no receipts.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

All loading and unloading is done with hand trucks over a gangplank.

This wharf is open to use by all water carriers on equal terms. Wharfage rates have not yet been established.

(*b*) There is no physical connection with any railroad and no mutual contract for the interchange of traffic.

(*c*) An unimproved wagon road leads to Manassas, Va.

(*e*) This wharf, with about 1 mile of shore line, is owned and operated by Dr. H. B. Hutchinson.

LIVERPOOL POINT, MD.

(*a*) Liverpool Point is located in Charles County, Md., on the left bank of the Potomac River, about 35 miles below Washington. Its wharf is a pile structure in fair condition. It has a river end 38 feet long, a pier 10 feet wide, and a length over all of 150 feet. There is a small warehouse on the wharf.

This wharf receives about 730 dockages per year. About 1,825 passengers per year arrive and depart. The outgoing freight consists principally of poultry, eggs, fruit, and stock, and will amount to about 9,125 pieces per year. The incoming freight consists largely of merchandise, fertilizer, and farm implements, and will amount to about 14,600 pieces per year. All loading and unloading is done with hand trucks over a gangplank.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charge.

(*b*) The nearest railroad is at La Plata, Md., about 20 miles distant.

(*c*) An unimproved wagon road leads to La Plata.

(*e*) This wharf, with about 1 mile of water front, is owned and operated by Mr. William T. Baker. There is no person or firm in this vicinity regularly engaged in the transfer and delivery business.

DENT'S WHARF, MD.

(*a*) Dent's Wharf is located in Charles County, Md., on the left bank of the Potomac River, about 39 miles below Washington. It is a wooden structure, supported partly on piles and partly on pole cribs, and is in fair condition. Its river end is 30 feet long, its pier 10 feet wide, and its length overall 270 feet. There is a small warehouse on the wharf.

This wharf receives about 1,460 dockages per year. About 2,190 passengers per year arrive and depart. The outgoing freight consists of about 2,190 barrels of fish per year. The incoming freight consists of household goods, flour, etc., and will amount to about 7,315 pieces per year. All loading and unloading is done with hand trucks over a gangplank.

This wharf is closed to all water carriers except the Potomac & Chesapeake Steamboat Co.

(*b*) The nearest railroad is the Popes Creek branch of the Pennsylvania Railroad, about 23 miles distant.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*c*) An unimproved wagon road leads to La Plata, Md.

(*e*) This wharf, with about one-half mile of water front, is owned by C. H. Dent and leased to the Potomac & Chesapeake Steamboat Co. There is no person or firm in this vicinity regularly engaged in the transfer and delivery business.

SMITH'S WHARF.

(*a*) Smith's Wharf is located in King George County, Md., on the right bank of the Potomac River, about 44 miles below Washington. It is a wooden pile structure, in good condition, protected by an ice break of pile clusters above. It is irregular in shape, with a river face 20 feet long, a pier 12 feet wide, and a length over all of 1,125 feet. There is a large wood and tie yard on the bluff at the shore end of the wharf. About 1,460 passengers per year arrive and depart.

The outgoing freight consists principally of chickens, eggs, stock, and butter, in amounts as follows:

Ties, 3,000 per year.
Wood, 300 cords per year.
Miscellaneous, 3,650 pieces per year.

The incoming freight consists largely of flour, groceries, meat, and household goods, and will amount to about 5,475 pieces per year. All loading and unloading is done by hand or with hand trucks over gangplanks.

This wharf is closed to all water carriers except the Potomac & Chesapeake Steamboat Co.

(*b*) The nearest railroad is at Fredericksburg, Va., about 15 miles distant.

(*c*) An unimproved private wagon road leads toward Osso post office, Va.

(*e*) This wharf, with about three-fourths mile of shore line, is owned by A. A. Douglas and leased to the Potomac & Chesapeake Steamboat Co. Transfer of freight from the wharf end to the shore is made with ordinary farm wagons drawn by hand. Considerable wood and ties are shipped from Jenning's shore landing above. The material is rafted out to barges in the stream.

SOMERSET, VA.

(*a*) Somerset is located in King George County, Va., on the right bank of the Potomac River, about 42 miles below Washington. The wharf is a wooden pile structure in fair condition. It is a reverse P in shape, having a wharf end 80 by 30 feet, a pier 10 feet wide, and a length over all of 1,328 feet. A small one-story frame warehouse 15 by 21 feet is on the wharf.

This wharf receives about 548 dockages per year. About 1,[illegible] passengers per year arrive and depart.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

The outgoing freight consists principally of fruit, farm products, ties, and wood, in amounts as follows:

Ties, 1,000 per year.
Wood, 375 cords per year.
Lumber, 150,000 feet per year.
Locust posts, 1,250 per year.
Miscellaneous, 4,380 pieces per year.

The incoming freight consists largely of groceries, fertilizer, and building materials, and will amount to about 4,380 pieces per year. Loading and unloading is done by hand and with hand trucks over gangplanks. The greater part of the lumber, ties, and wood shipped does not pass over the wharf, but is piled on shore and lightered out to vessels docked at the end of the wharf.

This wharf is open to use by all water carriers on equal terms. Wharfage rates are as follows:

Steamboat freight, 10 per cent of transportation charges.
Wood, 10 cents per cord.
Ties, one-half cent each.

For materials not passing over the wharf the following storage rates are charged:

Wood, 5 cents per cord.
Ties, one-fourth cent each.

(*b*) The nearest railroad is at Fredricksburg, Va., about 25 miles distant.

(*c*) An unimproved wagon road leads to Amber post office, Va.

(*e*) This wharf is owned and operated by Payne & Co. Transfer from shore to wharf end, or vice versa, is made by mule or horse drawn wagons.

STUART, VA.

(*a*) Stuart is located in King George County, Va., on the right bank of the Potomac River, about 48 miles below Washington. Its wharf is a pile structure in fair condition. It is irregular in shape, with a river end 33 feet long and a pier 15 feet wide. A small warehouse 18 by 20 feet is on the wharf, and an industrial railroad, gauge 0 inches, runs along the pier to shore.

This wharf receives about 208 dockages per year. About 730 passengers per year arrive and depart.

The outgoing freight consists principally of poultry, grain, and ork, and will amount to about 6,570 pieces per year. The incoming reight consists largely of dry goods and groceries, and will amount about 548 tons per year. Considerable wood and ties are shipped om shores in this vicinity.

(*b*) The nearest railroad is at Fredericksburg, Va., about 24 miles istant.

(*c*) An unimproved wagon road leads to King George Courtouse, Va.

(*e*) This wharf is owned by Stuart Hunter.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

RIVERSIDE, MD.

(*a*) Riverside is located in Charles County, Md., on the left bank of the Potomac River, about 50 miles below Washington. Its wharf is a wooden pile structure in fair condition. It is a reversed P in shape, with a river end 40 feet long and a length over all of 421 feet. There is a frame warehouse 13 by 25 feet and a stock pen. An industrial track, 38-inch gauge, runs along the pier. A wire cable is stretched on high piles, forming a handrail.

This wharf receives about 1,278 dockages per year. About 730 passengers per year arrive and depart.

The outgoing freight consists of tobacco, wheat, corn, and stock, and will amount to about 7,300 pieces per year. The incoming freight consists largely of fertilizer, merchandise, meal, and meat, and will amount to about 7,300 pieces per year. Loading and unloading is done with hand trucks over a gangplank.

This wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co., and the Potomac & Chesapeake Steamboat Co.

(*b*) The nearest railroad is at La Plata, Md., about 20 miles distant.

(*c*) An unimproved wagon road leads to La Plata.

(*e*) This wharf, with about one-fourth mile of water front, is owned by Mrs. W. D. Swan. There is no person or firm in the vicinity regularly engaged in the transfer or delivery business.

MATHIAS POINT, VA.

(*a*) Mathias Point is located in King George County, Va., on the right bank of the Potomac River, about 54 miles below Washington. Its wharf is a wooden pile structure in good condition. Its river end is 19 feet long, its pier 12 feet wide, and its length over all 30 feet. There is a small stock pen on the wharf, but no warehouse. This wharf receives about 913 dockages per year. About 1,040 passengers per year arrive and depart.

The outgoing freight consists principally of fruit, stock, farm produce, and fish, and will amount to about 10,950 pieces per year. The incoming freight consists largely of fertilizer and household goods, and will amount to about 13,870 pieces per year.

Considerable wood is shipped from shore.

All loading and unloading is done by hand or with hand trucks over a gangplank.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charge.

(*b*) The nearest railroad is at Fredericksburg, Va., about 26 miles distant.

(*c*) An unimproved wagon road leads to Fredericksburg, Va.

(*e*) This wharf, with about three-fourths mile of shore line, is owned by Mr. E. C. Grimes. There is no person or firm in the vicinity regularly engaged in the transfer and delivery business.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

WILKERSONS, VA.

(*a*) Wilkersons is located in Westmoreland County, Va., on the right bank of the Potomac River, about 65 miles below Washington, D. C. Its wharf is a wooden pile structure in poor condition. It is a T in shape, having a river face 27 feet long, a pier 12 feet wide, and a length over all of about 300 feet. There is one warehouse 24 by 12 feet, and a small stock pen. A dilapidated flat car runs along the pier on a track formed of 2 by 4 inch timbers laid flat and capped with strap iron.

This wharf receives about 630 dockages per year. About 3,150 passengers per year arrive and depart.

The outgoing freight consists principally of poultry, eggs, stock, and corn, and will amount to about 9,450 pieces per year. The incoming freight consists largely of merchandise, fertilizer, hay, and farm implements and will amount to about 450 tons per year. All loading and unloading is done with hand trucks over a gangplank.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of transportation charges.

(*b*) The nearest railroad is at Fredericksburg, Va., about 40 miles distant.

(*c*) An unimproved wagon road leads to Colonial Beach, Va.

(*e*) Wilkerson's Wharf, with about one-fourth mile of water front, is owned and operated by Mr. W. S. Wilkerson. Its gross revenue is about $275 per year.

No person or firm in this vicinity is regularly engaged in the transfer or delivery business. Service of the most distant patron requires a haul of 15 miles.

COLONIAL BEACH, VA.

(*a*) Colonial Beach is located in Westmoreland County, Va., on he right bank of the Potomac River about 68 miles below Washington. It has two wharves and a coal landing.

The excursion wharf is a substantial wooden pile structure. It is T in shape, with a wharf end 31 by 95 feet, a pier 16 feet wide, and length over all of 706 feet. It is lighted with electricity.

This wharf receives about 2,555 dockages per year, including launches. About 173,680 passengers per year arrive and depart. There is no outgoing freight. The incoming freight consists of bout 75,000 brick per year.

Loading and unloading is done by hand.

This wharf is closed to all water carriers except the Colonial Beach Co. Occasionally other carriers land by special permission, nd pay a wharfage charge of 10 per cent of the transportation harge.

The freight wharf is a wooden pile structure. It is a T in shape, ith a river end 41 feet long, a pier 16 feet wide, and a length over l of 496 feet. There is a warehouse 24 by 40 feet at the center of his wharf end. This wharf receives about 1,643 dockages per year. bout 3,650 passengers per year arrive and depart.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

The outgoing shipments consist principally of farm products, fish and oysters, and will amount to about 6,570 pieces per year. The incoming freight consists largely of coal, lumber, brick, and provisions, and will amount to about 2,083 tons per year. About 30 tons of coal per year is landed at the coal landing above the excursion wharf. All loading and unloading is done by hand and with hand trucks over a gangplank.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charge.

(*b*) The nearest railroad is at Fredericksburg, Va., about 40 miles distant.

(*c*) An unimproved wagon road leads to Fredericksburg, Va. There is an unimproved wagon road along the greater part of the Potomac front of the town; for a length of 1,547 feet this marginal street is separated from the beach by a board walk 16 feet wide. The freight wharf, with 8,660 feet of water front, is owned by the taxpayers of the town, and is controlled for the public good by the town council. The wharf is leased to the Potomac & Chesapeake Steamboat Co. By the terms of the lease the steamboat company receives the wharf free of charge, but must keep it in repair, and guarantee to the town regular and satisfactory transportation facilities. Transfer between the wharf end and shore is made by hand carts and by wagons drawn by a single steady horse hitched to the end of the pole.

There are four licensed expressmen in the town. Their prices for delivery are 25 cents for a single piece, 5 to 10 cents per piece in a load, 50 to 75 cents per 1,000 feet of lumber, and $1 per load for furniture.

PINEY POINT, MD.

(*a*) Piney Point is located in St. Marys County, Md., on the left bank of the Potomac River, about 93 miles below Washington. Its wharf is an open pile structure in fair condition. It is a P in shape having a wharf end 33 by 82 feet, a pier 13 feet wide, and a length over all of 208 feet. There is an open passenger waiting room on the wharf, and a small warehouse on shore.

This wharf receives about 365 dockages per year. About 17,1[illegible] passengers per year arrive and depart.

The outgoing freight consists principally of tobacco, wheat, poultry, and stock, and will amount to about 9,360 pieces per year. The incoming freight consists largely of merchandise, fertilizer, and farm implements, and will amount to about 23,400 pieces per year. All loading and unloading is done with hand trucks across a gangplank.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charge.

(*b*) The nearest railroad is at Mechanicsville, Md., about 30 miles distant.

(*c*) An unimproved wagon road leads to Leonardtown, Md.

(*e*) The Piney Point Wharf, with about 1 mile of water front, owned and operated by Mr. Warren Tolson. Its gross revenue about $2,100 per year.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

POINT LOOKOUT, MD.

(*a*) Point Lookout is located in St. Marys County, Md., on the left bank of the Potomac River at its mouth, about 105 miles below Washington, D. C. Its wharf is a substantial wooden pile structure in good condition. There are no warehouses on the wharf itself. A steel industrial track leads to shore.

Point Lookout is used as a buoy station for the United States Lighthouse Service. It is the property of the United States.

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20. PATUXENT RIVER.

(*a*) The Patuxent River is located in the State of Maryland. It flows in a generally southerly direction and empties into the Chesapeake Bay about 76 miles below Baltimore, Md.

It has 23 regular ports, and 22 of these are steamboat landings. The common type of terminal is the wooden pile wharf, generally in fair condition. Practically all of the wharves have one small warehouse and quite a number are equipped with one or two small wooden hoists for raising oysters and fish from small boats to the level of the wharf.

The regular terminals of the Patuxent River receive about 6,048 lockages per year. It is estimated that the passenger traffic amounts to 14,561 arrivals and departures per year.

The outgoing freight consists principally of tobacco, poultry, grain, and fruit and will amount to about 24,585 tons per year.

The incoming freight consists largely of fertilizer, merchandise, grain, and hay and will amount to about 14,408 tons per year. In addition to the above there are some railroad ties and grain shipped from shore and temporary landings.

The Maryland, Delaware & Virginia Railway Co. operates a regular steamboat line between the Patuxent River ports and Baltimore, Md.

All loading and unloading is done by hand or with hand trucks over a gangplank. Of the 27 wharves on the Patuxent River only 5 are open to use by all water carriers on equal terms. Wharfage rates are as a rule 10 per cent of the transportation charges. Shore landings are generally open and free.

(*b*) The Pennsylvania Railroad in a general way parallels the Patuxent River at a distance of about 5 miles as far down as Trent Hall, and the Chesapeake Beach Railroad crosses the river on a pile trestle bridge about 46 miles above its mouth.

There is no physical connection between either of these railroads and the terminals of the river and no interchange of traffic.

(*c*) The highways leading to the terminals of the Patuxent River are adequate as to number, but they are not improved and are generally in very bad condition.

(*d*) The terminals of the Patuxent River are believed to be ample for the present traffic and for the future traffic so far as it can now be foreseen.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*e*) The Maryland, Delaware & Virginia Railway Co. owns outright 11 wharves on the Patuxent River and has exclusive rights, by lease or otherwise, to 7 more. There are 9 privately owned wharves and 3 privately controlled. Four are owned by companies or corporations other than rail or steamship companies and 3 are controlled by such companies.

Practically all transfer and delivery of water-borne freight is made by the patrons of the wharves themselves.

The average haul for the service of most distant patrons of the various terminals is about 5 miles.

The water carriers on this river serve a territory of approximately 460 square miles.

BRISTOL, MD.

(*a*) Bristol is located in Anne Arundel County, Md., on the left bank of the Patuxent River, about 1½ miles above the Chesapeake Beach Railroad bridge.

It has two wharves, both being old wooden pile structures in very poor condition. Bristol has been entirely abandoned as a shipping point.

(*b*) There is no physical connection with any railroad.

(*c*) An unimproved wagon road leads to Fischers Station, Md.

(*e*) The large wharf, with about 1,500 feet of water front, belongs to Mr. James Z. Greenwell. The small wharf, with about 15[illegible] feet of water front, belongs to Anne Arundel County, Md.

LYONS CREEK, MD.

(*a*) Lyons Creek is located in Calvert County, Md., on the left bank of the Patuxent River, about 3 miles below the Chesapeake Beach bridge.

Its wharf is a rectangular wooden pile structure in poor condition. It is about 50 feet long by about 35 feet wide and has a single one-story warehouse about 20 feet square. Its piles are not connected by braces.

This wharf receives about 106 dockages per year, not including small fish boats. About 100 passengers arrive and depart per year. The outgoing shipments consist principally of silica, tobacco, and farm produce, and will amount to about 500 tons of silica and other articles, to the value of about $1,000 per year.

The incoming shipments consist largely of merchandise and amount to about $500 per year in value.

All loading and unloading is done with hand trucks over a gang plank.

This wharf is open to use by all water carriers upon equal terms. The steamboat wharfage rate is 10 per cent of the transportation charge. Vessels pay a dockage charge of $3 or $4, according to size.

(*b*) The nearest railroad is at Fischers, Md., about 3 miles distant.

(*c*) An unimproved wagon road leads to Fischers, Md.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*e*) This wharf, with about 1,800 feet of water front, is owned and operated by the Maryland Silicate Co., of No. 10 Wall Street, New York City. Its gross revenue is about $75 per year.

No person or firm in this vicinity is engaged regularly in the transfer and delivery business.

Service of the most distant patron requires a haul of about 3½ miles.

NOTTINGHAM, MD.

(*a*) Nottingham is located in Prince George County, Md., on the right bank of the Patuxent River, about 5 miles below the Chesapeake Beach bridge.

Its wharf is a wooden pile structure in fair condition. It is rectangular in shape, about 85 by 40 feet, and has two one-story frame warehouses—one about 30 by 25 feet and one about 30 by 20 feet. The wharf receives about 75 dockages per year, and about 5 vessels per year load or unload from shore just above. It is estimated that 25 passengers per year arrive and depart.

The outgoing shipments are about as follows:

Tobacco, 500 tons per year.
Poultry, 100 coops per year.
Grain, 1,000 bags per year.
Wood, 150 tons per year.
Miscellaneous, 100 pieces per year.

The incoming freight consists largely of merchandise, fertilizer, grain, and farm implements, and will amount to about 150 tons per year.

The wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co. The shore landing is open to use by all water carriers and is free.

(*b*) The nearest railroad is at Croome Station, Md., 8 miles distant.

(*c*) An unimproved wagon road leads to North Keys, Md.

(*e*) The wharf, with about 90 feet of water front, is owned by the Maryland, Delaware & Virginia Railway Co. The shore landing, about 150 feet front, is owned by Prince George County, Md.

The Nottingham Ferry Co. operates a flatboat as a rope ferry between Nottingham and a point of marsh on the opposite side of the river. This ferry makes about 100 round trips per year. Ferryboat rates are as follows:

Persons, 10 cents round trip.
Single teams, 40 cents round trip.
Double teams, 50 cents round trip.

There is no person or firm in this vicinity engaged regularly in the transfer and delivery business.

Service of the most distant patron requires a haul of about 4 miles.

FERRY LANDING, MD.

(*a*) Ferry Landing is located in Calvert County, Md., on the left bank of the Patuxent River, about 6 miles below the Chesapeake Beach Bridge.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Its wharf is a wooden-pile structure, in good condition. It is a P in shape, with a wharf end 36 by 57 feet, a pier 12 feet wide, and a length over all of 141 feet. A warehouse 21 by 33 feet is on the wharf.

This wharf receives about 100 dockages per year, and about 15 passengers per year arrive and depart.

The outgoing freight consists principally of tobacco, grain, fruit and potatoes and will amount to about 800 pieces per year. The incoming freight consists principally of groceries, fertilizer, and lumber and will amount to about 1,000 pieces per year.

All loading and unloading is done with hand trucks over a gang-plank.

This wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Chaney, Md., 5 miles distant.

(*c*) An unimproved wagon road leads to Dunkirk, Md.

(*e*) The Ferry Landing Wharf, with about 70 feet of water front, belongs to the Maryland, Delaware & Virginia Railway Co. There is no person or firm in this vicinity regularly engaged in the transfer and delivery business.

Service of the most distant patron requires a haul of about 3 miles.

WHITE'S LANDING, MD.

(*a*) White's Landing is located in Prince George County, Md., on the right bank of the Patuxent River, about 9 miles below the Chesapeake Beach Railway Bridge.

Its wharf is a wooden-pile structure, in good condition. It is a T in shape, with a wharf end about 33 by 30 feet, a pier 9 feet wide, and a length over all of about 54 feet. A one-story frame warehouse about 30 by 21 feet stands at the shore end of the pier.

This wharf receives about 200 dockages per year, and about 15 passengers per year arrive and depart.

The outgoing freight consists principally of tobacco, poultry, fruit and grain and will amount to 3,000 pieces per year. The incoming freight consists principally of groceries, hay, and fertilizer and will amount to about 2,500 pieces per year.

All loading and unloading is done with hand trucks over a gang plank.

This wharf is closed to use by all water carriers except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Cedarville, Md., about 6 miles distant.

(*c*) An unimproved wagon road leads to Westwood, Md.

(*e*) This wharf, with about 33 feet of water front, is the property of the Maryland, Delaware & Virginia Railway Co.

There is no person or firm in this vicinity regularly engaged in the transfer and delivery business.

Service of the most distant patron requires a haul of about 3 miles.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

LOWER MARLBORO, MD.

(*a*) Lower Marlboro is located in Calvert County, Md., on the left bank of the Patuxent River, about 10 miles below the Chesapeake Beach Bridge.

Its wharf is a wooden-pile structure, in poor condition. It is irregular in shape, presenting a river face about 72 feet long. There are two warehouses, one 48 by 24 feet and the other 15 by 40 feet.

This wharf receives about 200 dockages per year, and it is estimated that about 25 passengers per year arrive and depart.

The outgoing freight consists principally of tobacco, grain, and poultry and will amount to about 2,500 pieces per year. The incoming freight consists principally of general merchandise, grain, and hay and will amount to about 5,000 pieces per year.

This wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Owens Station, 7 miles distant.

(*c*) An unimproved wagon road leads to Wilburn, Md.

(*e*) The Lower Marlboro Wharf, with about 90 feet of water front, is owned by the Maryland, Delaware & Virginia Railway Co. There is no person or firm in this vicinity who is regularly engaged in the transfer or delivery business.

Service of the most distant patron requires a haul of about 6 miles.

MAGRUDER'S FERRY, MD.

(*a*) Magruder's Ferry is located in Prince George County, Md., on the right bank of the Patuxent River about 12 miles below the Chesapeake Beach Bridge.

Its wharf is an almost square wooden-pile structure in fair condition. It is about 45 feet long on each side and has an independent separate fender system. A warehouse 33 by 21 feet is on the land side of the wharf.

This wharf receives about 200 dockages per year, and it is estimated that about 60 passengers arrive and depart per year.

The outgoing freight is as follows:

Wood, 150 cords per year.
Tobacco, 750 hogsheads per year.
Grain, 300 bags per year.
Poultry, 200 coops per year.
Fruit, 100 boxes per year.

The incoming freight consists largely of merchandise, grain, and fertilizer, and will amount to about 650 tons per year.

All loading and unloading is done with hand trucks across a gangplank.

This wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Cedarville, Md., about 7 miles distant.

(*c*) An unimproved wagon road leads to Westwood, Md.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*e*) The Magruders Ferry Wharf is owned by the Maryland, Delaware & Virginia Railway Co. The wood listed among the outshipments is shipped from a shore landing just above the steamboat wharf. There is no person or firm in this vicinity regularly engaged in the transfer or delivery business. Service of the most distant patron requires a haul of 6 miles.

HOLLANDS CLIFFS, MD.

(*a*) Hollands Cliffs is located in Calvert County, Md., on the left bank of the Patuxent River, about 15 miles below the Chesapeake Beach Bridge. Its wharf is a wooden-pile structure, a P in shape, with a wharf end 24 by 72 feet, a pier 10 feet wide, and a length over all of 192 feet. There is a warehouse 21 by 33 feet and a small stock pen on the wharf. The remains of what was once a wooden track is along the pier.

This wharf receives about 200 dockages per year, and it is estimated that about 38 passengers per year arrive and depart.

The outgoing freight consists largely of tobacco, fruit, poultry, and stock, and will amount to about 1,500 pieces per year. The incoming freight consists principally of grain and merchandise, and will amount to about 600 tons per year. All loading and unloading is done with hand trucks across a gangplank.

The wharf is closed to the use of all water carriers except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Owens Station, 12 miles distant.

(*c*) An unimproved wagon road leads to Huntingtown, Md.

(*e*) The Hollands Cliffs Wharf belongs to Messrs. J. W. Lyons, R. H. Norfolk, and Cranford, upon ground owned by Mrs. J. R. Andrew. The Maryland, Delaware & Virginia Railway Co. has exclusive rights, in return for which they pay the owners a percentage of transportation charges. No person or firm in this vicinity is engaged regularly in the transfer or delivery business. Service of the most distant patron requires a haul of 4 miles.

DEEP LANDING, MD.

(*a*) Deep Landing is located in Calvert County, Md., on the left bank of the Patuxent River, about 16 miles below the Chesapeake Beach Bridge. Its wharf is a wooden-pile structure in fair condition. It is an irregular T in shape, with a wharf end about 45 by 40 feet, a pier 10 feet wide, and a length over all of about 90 feet. There is a small one-story frame warehouse and a stock pen on the wharf.

This wharf receives about 142 dockages per year, and it is estimated that 142 passengers per year arrive and depart.

The outgoing freight consists principally of tobacco, poultry, grain, and fruit, and will amount to about 280 tons per year.

The incoming freight consists largely of feed, flour, groceries, and kerosene, and will amount to about 50 tons per year.

All loading and unloading is done with hand trucks over a gangplank.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

This wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Chesapeake Beach, Md., 16 miles distant.

(*c*) An unimproved wagon road leads to Lowry, Md.

(*e*) The Deep Landing Wharf, together with about three-fourths mile of water front, is owned by Messrs. E. L. and W. B. Bowie. It is rented by the year to the Maryland, Delaware & Virginia Railway Co. for $100 per year.

There is no person or firm in this vicinity regularly engaged in the transfer or delivery business. Service of the most distant patron requires a haul of 5 miles.

TRUEMAN'S POINT, MD.

(*a*) Trueman's Point is located in Prince George County, Md., on the right bank of the Patuxent River, about 17 miles below the Chesapeake Beach Bridge.

Its wharf is a dilapidated wooden-pile structure, with a wharf end about 48 by 69 feet, a pier 12 feet wide and a length over all of about 270 feet. There is a one-story frame warehouse about 18 by 42 feet and a small stock pen on the wharf.

This wharf receives about 142 dockages per year, and it is estimated that 426 passengers per year arrive and depart. The outgoing freight consists principally of tobacco, stock, poultry, and wheat, and will amount to about 3,150 pieces per year. The incoming freight consists largely of flour, meal, store goods, and farm implements, and will amount to about 7,500 pieces per year.

All loading and unloading is done with hand trucks across gangplanks.

This wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Gallant Green, Md., about 8 miles distant.

(*c*) An unimproved wagon road leads to Aquanico, Md.

(*e*) The Truemans Point Wharf, with about 68 feet of water front, is owned by the Maryland, Delaware & Virginia Railway Co. At a shore landing just above the wharf about 50 tons of coal per year is received and about 300 cords of wood per year is shipped away.

There is no person or firm in this vicinity engaged regularly in the transfer or delivery business. Service of the most distant patron requires a haul of about 5 miles.

LIETCH'S WHARF, MD.

(*a*) Lietch's Wharf is located in Calvert County, Md., on the left bank of the Patuxent River, about 19 miles below the Chesapeake Beach Bridge.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Its wharf is a wooden-pile structure in fair condition. It is a reversed P in shape, with a wharf end about 45 by 33 feet, a pier about 12 feet wide and a length over all of about 390 feet. A steel industrial track is laid to a 45-inch gauge along the pier. There is a one-story frame warehouse about 27 by 16 feet. There is a wooden handrail on each side of the pier.

This wharf receives about 116 dockages per year, and it is estimated that 348 passengers per year arrive and depart.

The outgoing freight consists principally of tobacco, grain, poultray, and stock, and will amount to about 2,950 pieces per year.

The incoming freight consists largely of general merchandise, groceries, and dry goods, and will amount to about 2,000 pieces per year.

This wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Owens Station, about 20 miles distant.

(*c*) An unimproved wagon road leads to Cedar Hill, Md.

(*d*) Lietch's Wharf, with about 75 feet of water front, is owned by the Maryland, Delaware & Virginia Railway Co.

No person or firm in this vicinity is regularly engaged in the transfer and delivery business.

Service of the most distant patron requires a haul of about 6 miles.

BENEDICT, MD.

(*a*) Benedict is located in Charles County, Md., on the right bank of the Patuxent River, about 22 miles below the Chesapeake Beach Bridge.

It has two wharves; the steamboat wharf is a wooden-pile structure in poor condition. It is an irregular T in shape, having a river face about 75 feet long, a pier 12 feet wide, and length over all of about 370 feet. A steel industrial track is laid along the pier at a gauge of 40 inches. There are two frame warehouses on the wharf, one about 24 by 36 feet and the other about 18 by 36 feet. There is a wooden handrail on each side of the pier.

The canning factory wharf is an irregular shaped wooden pile structure built around the canning factory.

It has three legs, one 65 by 21 feet, one 19 by 48 feet, and the third 27 by 3 feet. Two of these legs are sheltered by an open shed.

This wharf is new and in good condition. Its piling is sparsely placed.

The steamboat wharf receives about 340 dockages per year. It is estimated that 250 passengers per year arrive and depart. The incoming freight consists principally of groceries, provisions, and fertilizer, and will amount to about 16,000 pieces per year.

The outgoing freight consists largely of grain, tobacco, stock, and fish, and will amount to about 4,000 pieces per year.

All loading and unloading is done with hand trucks over gangplanks.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

The canning factory wharf receives about 300 dockages per year. The incoming freight is as follows:

Tomatoes, 7,000 baskets per year.
Berries, 37,000 gallons per year.
Empty cases, 20,000 per year.

The outgoing shipments consist of canned goods, and will amount to 20,000 cases per year.

Neither of the wharves at Benedict are open to use by all water carriers.

(*b*) The nearest railroad is at Hughesville, Md., about 7 miles distant.

(*c*) An unimproved wagon road leads to Hughesville, Md.

(*e*) The steamboat wharf, with about 68 feet of water front, is owned by the Maryland, Delaware & Virginia Railway Co.

The canning factory wharf, with about 150 feet of water front, is owned by Mrs. Mercer, and is leased to Mumsen & Davis. In addition to the wharves of Benedict there are two shore landings. The Lawrence landing is between the two wharves, on a lot with about 130 feet of water front, owned by the heirs of M. S. Lawrence. From this landing are shipped per year:

Tobacco, about 10 tons.
Grain, about 450 bushels.
Wood, about 50 cords.

Mrs. F. W. Hill owns a lot with about 420 feet water frontage below the canning factory wharf. This is rented to Mr. T. J. Chappelear, and has been used as a shipping point. During 1912 about 250 ties were shipped from this landing.

No charge is made for storage at either of the above landings.

There is no person or firm in this vicinity regularly engaged in the transfer or delivery business. Service of the most distant patrons requires a haul of about 5 miles.

HOLLAND POINT, MD.

(*a*) Holland Point is located in Calvert County, Md., on the left bank of the Patuxent River, about 22 miles below the Chesapeake Beach bridge.

Its wharf is a new wooden pile structure in good condition. It is a T in shape, having a wharf end 72 feet square, a pier 12 feet wide, and length over all of about 810 feet. It has an independent or separate fender system. There are two substantial new one-story frame warehouses, each 24 by 46 feet, with galvanized iron roofs. A steel industrial track, gauge 40 inches, is laid along the pier, and there are wooden handrails the entire length of the wharf.

This wharf receives about 226 dockages per year. It is estimated that 250 passengers per year arrive and depart. The outgoing freight consists principally of tobacco, wheat, peaches, and fish, and will amount to 1,700 pieces per year. The incoming freight consists

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

largely of seed, wheat, corn, oats, and rye, and will amount to about 9,000 pieces per year.

All loading and unloading is done with hand trucks over a gangplank.

This wharf is closed to all water carriers, except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Owens Station, about 20 miles distant.

(*c*) An unimproved wagon road leads to Barstow, Md.

(*e*) The Holland Point wharf, with about 100 feet of water front, is owned by the Maryland, Delaware & Virginia Railway Co. There is no person or firm in this vicinity engaged regularly in the transfer or delivery business. Service of the most distant patron requires a haul of 4 miles.

A litle way below the wharf is a shore landing owned by Frank Paran and rented to J. Harry Hamit. About 25 vessels arrive at this landing per year, and about 18,000 railroad ties and 75 cords of wood are shipped away in that period. No charge is made for wharfage or storage at this landing.

TRENT HALL, MD.

(*a*) Trent Hall is located in St. Marys County, Md., on the right bank of the Patuxent River, about 24 miles below the Chesapeake Beach Bridge. Its wharf is a wooden pile structure in fair condition. It is irregular in shape, presenting a river face about 45 feet long, with a pier 12 feet wide and a length over all of about 359 feet. It has a separate fender system. There is a one-story warehouse 27 by 45 feet on the wharf; also a small stock pen. A handrail is on both sides of the pier.

This wharf receives about 476 dockages per year, and it is estimated that 250 passengers per year arrive and depart.

The outgoing freight consists largely of tobacco, grain, poultry, and stock, and will amount to about 1,700 pieces per year.

The incoming freight consists largely of fertilizer, hay, and groceries, and will amount to about 2,370 pieces per year.

All loading and unloading is done with hand trucks over a gangplank.

This wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Mechanicsville, about 6 miles distant.

(*c*) An unimproved wagon road leads to Mechanicsville, Md.

(*e*) The Trent Hall Wharf, with about 1½ miles of water front, is owned by Mrs. Elize S. Thomas. The wharf is rented to the Maryland, Delaware & Virginia Railway Co.

There is no person or firm in this vicinity regularly engaged in the transfer or delivery business. Service of the most distant patron requires a haul of about 7 miles.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

There are also shipped about 2,000 railroad ties and about 800 bushels of grain per year from shore at this point by vessel.

DUKES WHARF, MD.

(*a*) Dukes Wharf is located in Calvert County, Md., on the left bank of the Patuxent River, about 25 miles below the Chesapeake Beach Bridge. Its wharf is a wooden-pile structure in fair condition. It is a T in shape, having a wharf end about 50 by 46 feet, a pier 10 feet wide, and a length over all of about 180 feet. The pier is light and wobbly. There is a one-story frame warehouse about 48 by 24 feet on the wharf.

This wharf receives about 325 dockages per year, and it is estimated that 250 passengers per year arrive and depart.

The outgoing freight consists principally of tobacco, grain, poultry, and oysters, and will amount to 6,500 pieces per year. The incoming freight consists principally of store goods and farm implements, and will amount to about 733 tons per year.

This wharf is open to use by all water carriers on equal terms. The wharfage rate for steamboat freight is 10 per cent of the transportation charge. Vessels pay a dockage rate of from $1 to $3 per day, according to size of vessel. The Maryland, Delaware & Virginia Railway steamboats are given the right of way.

(*b*) The nearest railroad is at Owens Station, Md., about 20 miles distant.

(*c*) An unimproved private wagon road leads from the wharf to the public road which leads to Adelina, Md.

(*e*) Dukes Wharf, with about 1 mile of water front, is owned and operated by Mr. W. H. Dowell. Its gross revenue is about $400 per year. Mr. George Gray is regularly engaged in the transfer and delivery business in this section. His charge for delivery is about 50 cents per load up to a distance of 2½ miles. Service of the most distant patron requires a haul of about 5 miles.

FORRESTS, MD.

(*a*) Forrests is located in St. Marys County, Md., on the right bank of the Patuxent River, about 29 miles below the Chesapeake Beach Bridge. Its wharf is a wooden-pile structure in good condition. Its piles are well spaced but not braced. It has a separate-fender system. It is an irregular T in shape, with a wharf end 46 by 35 feet and a pier 12 feet wide. There is a one-story frame warehouse 22 by 34 feet on the wharf, and a steel industrial track, 50-inch gauge, carries a wooden-platform flat car 12 by 6 feet along the pier. This car is operated by hand. There is also a stock pen and one small oyster derrick on the wharf. A wooden handrail is on both sides of the pier.

This wharf receives about 343 dockages per year, and it is estimated that 1,600 passengers per year arrive and depart.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

The outgoing freight consists principally of tobacco, grain, poultry, and oysters, and will amount to about 2,450 pieces per year. The incoming freight consists principally of merchandise, hay, and household goods, and will amount to about 680 tons per year.

In addition to the steamboat traffic, about 20 vessels per year are loaded from shore at this point. About 14,000 railroad ties are shipped per year.

All loading and unloading is done by hand or with hand trucks over gangplanks.

The steamboat wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co. The shore landing is open to use by all water carriers. It is understood that no wharfage or shorage charges are made.

(*b*) The nearest railroad is at Mechanicsville, Md., about 10 miles distant.

(*c*) An unimproved wagon road leads to Oakville, Md.

(*e*) The Forrest Wharf is owned by the Maryland, Delaware & Virginia Railway Co., on water frontage belonging to Mr. John Key. There is no person or firm in this vicinity engaged regularly in the transfer and delivery business. Service of the most distant patron requires a haul of about 6 miles.

PARKERS WHARF, MD.

(*a*) Parkers Wharf is located in Calvert County, Md., on the left bank of the Patuxent River, about 31 miles below the Chesapeake Beach Bridge. Its wharf is a wooden-pile structure in fair condition. Its shape is a T, with a wharf end 47 by 79 feet and a length over all of about 450 feet. There is a one-story frame warehouse, about 16 by 42 feet, and a stock pen. A steel industrial track, about 45-inch gauge, runs along the pier to shore. There is a wooden handrail along the whole of one side of the pier and a part of the other.

This wharf receives about 321 dockages per year. It is estimated that 642 passengers per year arrive and depart.

The outgoing freight consists principally of poultry, fruit, tobacco, and stock, and will amount to about 12,750 pieces per year. The incoming freight consists largely of store goods, household goods, mill feed, and construction materials, and will amount to about [illegible] tons per year.

All loading and unloading is done with hand trucks over gangplanks.

Parkers Wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co. The steamboat company pays a wharfage rate amounting to 6 per cent of the transportation charge and, in addition, keeps the wharf in repair.

(*b*) The nearest railroad is at Chesapeake Beach, Md., about [illegible] miles distant.

(*c*) An unimproved wagon road leads to Island Creek, Md.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*e*) The Parkers Wharf, with about 1¾ miles of water front, is owned and operated by Dr. Philip Briscoe. Its gross revenue is about $275 per year. About eight vessels per year are loaded from the shore near this wharf. About 75 cords of wood per year and 4,500 ties per year are shipped in this manner. There is no person or firm in this vicinity regularly engaged in the transfer and delivery business. Service of the most distant patron requires a haul of about 5 miles.

JONES, MD.

(*a*) Jones Landing is located in St. Marys County, Md., on the right bank of the Patuxent River. Its wharf has been destroyed, and it has practically been abandoned as a shipping point. About 250,000 feet of lumber is shipped each year.

SOTTERLEY, MD.

(*a*) Sotterley is located in St. Marys County, Md., on the right bank of the Patuxent River, about 34 miles below the Chesapeake Beach Bridge.

Its wharf is a wooden-pile structure in poor condition. It is a P n shape, with a wharf end 38 by 61 feet and a length over all of 256 feet. It has a separate-fender system, which is in very poor condition. There is a one-story frame warehouse, 18 by 45 feet, a steel industrial track with a gauge of 45 inches, and a wooden hand-rail on both sides of the pier.

This wharf receives about 372 dockages per year. It is estimated that 520 passengers per year arrive and depart.

The outgoing freight consists principally of tobacco, wheat, poultry, and oysters, and will amount to about 13,440 pieces per year. The incoming freight consists largely of merchandise, liquors, fertilizer, and hay, and will amount to about 1,680 tons per year.

All loading and unloading is done by hand and with hand trucks over gangplanks.

This wharf is open to use by all water carriers on equal terms. The wharfage rate is 10 per cent of the transportation charges.

(*b*) The nearest railroad is at Mechanicsville, Md., about 18 miles distant.

(*c*) An unimproved wagon road leads to Hollywood, Md.

(*e*) The Sotterley Wharf, with about one-half mile of water front, is owned and operated by Herbert L. Satterlee. Its gross revenue is about $400 per year. There is no person or firm in this vicinity engaged regularly in the transfer and delivery business. Service of the most distant patron requires a haul of about 4 miles.

MACKALL'S WHARF, MD.

(*a*) Mackall's Wharf is located in Calvert County, Md., on the right bank of St. Leonards Creek, at the point where it empties into the Patuxent River, about 35 miles below the Chesapeake Beach Bridge.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

Its wharf is a wooden-pile structure in poor condition. Its shape is that of a reversed P, with a wharf end of about 65 by 39 feet, a pier 12 feet wide, and a length overall of about 230 feet. There is a small one-story frame warehouse, about 18 by 27 feet, and a stock pen on the wharf.

This wharf receives about 336 dockages per year. It is estimated that 672 passengers per year arrive and depart.

The outgoing freight consists principally of tobacco, grain, oysters and fruit, and will amount to about 4,000 pieces per year. The incoming freight consists largely of fertilizer and store goods, and will amount to about 128 tons per year. All loading and unloading is done with hand trucks over a gangplank.

This wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Owens Station, about 30 miles distant.

(*c*) An unimproved wagon road leads to Wallville, Md.

(*e*) Mackalls Wharf, with about 49 feet of water front, is owned by the Maryland, Delaware & Virginia Railway Co. There is no person or firm in this vicinity regularly engaged in the transfer or delivery business. Service of the most distant patron requires a haul of about 6 miles.

SOLLERS, MD.

(*a*) Sollers is located in Calvert County, Md., on the left bank of St. Leonards Creek, at the point where it empties in the Patuxent River, about 35 miles below the Chesapeake Beach Bridge.

Its wharf is a wooden-pile structure in good condition. It is irregular in shape, presenting a river face 34 feet long, a pier 10 feet wide, and a length over all of 120 feet. There is a warehouse 23 by 15 feet on the wharf, and a wooden track, gauge 30 inches, carries a flat car along the pier to the shore.

This wharf receives about 387 dockages per year. It is estimated that 300 passengers per year arrive and depart. The outgoing freight consists largely of farm produce, tomatoes, and lumber. Seventy-five thousand baskets of tomatoes are shipped per year, and about 25,000 other packages. The incoming freight consists principally of store goods, farm implements, and household goods and amounts to about 350 tons per year. All loading and unloading is done with hand trucks over a gangplank.

This wharf is open to use by all carriers on equal terms. The steamboat company pays a wharfage rate of 10 per cent of the transportation charges; the rate for tomatoes is 25 cents per 100 baskets.

(*b*) The nearest railroad is at Chesapeake Beach, Md., about [illegible] miles distant.

(*c*) An unimproved wagon road leads to Lusbys Post Office, Md.

(*e*) The Sollers Wharf, with about 1 mile of water front, is owned and operated by Mr. James C. Sollers. The gross revenue is about $450 per year. There is no person or firm in this vicinity regularly

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

engaged in the transfer or delivery business. Service of the most distant patron requires a haul of about 7 miles.

SPENCERS, MD.

(*a*) Spencers Wharf is located in St. Marys County, Md., on the right bank of the Patuxent River about 39 miles below the Chesapeake Beach Bridge.

Its wharf is a wooden-pile structure in fair condition. In shape it is a T, having a wharf end 51 by 55 feet, a pier 12 feet wide, and a length over all of 276 feet. It has a separate fender system and two one-story frame warehouses and one stock pen. A steel industrial track carrying a flat car is laid along the pier. There is a wooden handrail on both sides of the pier.

This wharf receives about 314 dockages per year. It is estimated that 1,256 passengers per year arrive and depart.

The outgoing freight consists principally of grain, poultry, wheat, and stock, and will amount to about 2,165 pieces per year. The incoming freight consists largely of potatoes, corn, store goods, and fertilizer, and will amount to about 314 tons per year. All loading and unloading is done with hand trucks over a gangplank.

This wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Mechanicsville, Md., about 24 miles distant.

(*c*) An unimproved wagon road leads to California, Md.

(*e*) Spencers Wharf, together with about 1½ miles of water front, is owned by Judge J. P. Crane, California, Md. There is no person or firm in this vicinity engaged regularly in the transfer or delivery business. Service of the most distant patron requires a haul of about 0 miles.

SOLOMONS ISLAND, MD.

(*a*) Solomons Island is located in Calvert County, Md., on the left bank of the Patuxent River, about 40 miles below the Chesapeake Beach Bridge.

It has four wharves. The old steamboat wharf is a wooden-pile structure in fair condition, located at the foot of English Avenue. It is irregular in shape, presenting a river face 68 feet long. It has a separate fender system in good condition. There is a warehouse, one-story frame, 56 by 20 feet.

The new steamboat wharf is a new wooden-pile structure in good condition. It is a reversed P in shape, with a river face 41 feet wide, a pier 18 feet wide, and a length over all of 91 feet. There is a frame one-story warehouse 20 by 30 feet on the wharf. This wharf is very lightly built.

In addition to the main wharves there are two small pile wharves used to receive and issue gasoline. These are Webster's Wharf and Johnson's Wharf.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

The old steamboat wharf receives about 362 dockages per year. It is estimated that 3,620 passengers arrive and depart per year.

The outgoing freight consists principally of oysters, fish, crabs, and poultry and will amount to 10,000 pieces per year. The incoming freight consists largely of merchandise, household goods, and lumber and will amount to about 1,810 tons per year.

The new steamboat wharf is not used at the present time. During the past year it received about 32 dockages and about 160 passengers arrived and departed. The outgoing freight consisted largely of oysters, fish, crabs, and poultry and amounted to about 320 pieces. The incoming freight consisted largely of merchandise, household goods, and lumber and amounted to about 30 tons.

At the gasoline wharf of J. F. Webster about 10,000 gallons of oil and gasoline are received and issued per year.

Johnson & Co. receive about 7,500 gallons of oil and gasoline per year at their gasoline wharf and issue the same amount.

M. M. Davis & Son receive at their shipyard about 500,000 feet of lumber per year and send out in finished vessels to the value of about $60,000 per year.

All loading and unloading is done by hand or with hand trucks over a gangplank.

The old steamboat wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co.

The new steamboat wharf is not in use at present.

(*b*) The nearest railroad is at Owens Station, about 37 miles distant.

(*c*) English Avenue forms a marginal street for the lower part of the developed Mill Creek front. It is improved with oyster shells.

(*e*) Solomons Island is an island lying between the Patuxent River and Mill Creek. It has a water front about 1½ miles long, about three-fourths of a mile on the Patuxent front and about three-fourths mile on the Mill Creek front. Practically the entire water front of this town is owned by J. S. Farran & Co. M. M. Davis & Son own about 100 feet front, including water rights, and utilize it as a shipyard. The owners of the water front are said to be liberal and willing to aid in the development of the front in any reasonable way but retain all of the water rights.

The old steamboat wharf is leased to the Maryland, Delaware & Virginia Railway Co., which pays 10 per cent of the transportation charges for the exclusive use of the wharf. Its gross revenue is about $1,000 per year.

The Patuxent front is undeveloped commercially. Patuxent Avenue, a residence street, runs along the bluff on this side. There is now being constructed on this side a reenforced-concrete sea wall to protect Patuxent Avenue from the eroding action of waves.

Frank Dixon and Elliott Dixon are regularly engaged in the delivery and transfer business. Their charges are about 30 cents per one-horse wagonload any place on the island.

Solomons Island is noted as the place where the dry dock *Dewey* received her acceptance tests. The town has a population of about 600.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

MILLSTONE, MD.

(*a*) Millstone is located in St. Marys County, Md., on the right bank of the Patuxent River, about 42 miles below the Chesapeake Beach Bridge.

Its wharf is a new wooden-pile structure in good condition. It is an irregular T in shape with a wharf end 56 by 73 feet, a pier 15 feet wide, and a length overall of 418 feet. It has a separate fender system. There is a new one-story frame warehouse, 42 by 25 feet, with a galvanized-iron roof. There are two stock pens, and a steel industrial track, gauge 44 inches, runs along the pier to shore. The trestle bents of the pier consist of three vertical piles and a cap. None of the piles of the wharf are braced.

This wharf receives about 330 dockages per year. It is estimated that 3,600 passengers per year arrive and depart.

The outgoing freight consists principally of oysters, poultry, fish, and grain and will amount to about 6,095 pieces per year. The incoming freight consists of merchandise, feed, lumber, and fertilizer and will amount to about 920 tons per year.

All loading and unloading is done with hand trucks over a gangplank.

This wharf is closed to all water carriers except the Maryland, Delaware & Virginia Railway Co.

(*b*) The nearest railroad is at Mechanicsville, about 18 miles distant.

(*c*) An unimproved wagon road leads to Jarvisville, Md.

(*e*) The Millstone Wharf, with about one-half mile of water front, is owned by Mr. John H. Thomas and is leased to the Maryland, Delaware & Virginia Railway Co. Under the terms of the lease the steamboat company is required to keep the wharf in repair.

There is no person or firm in this vicinity engaged regularly in the transfer or delivery business. Service of the most distant patron requires a haul of about 6 miles.

SUSQUEHANNA, MD.

(*a*) Susquehanna is located in St. Marys County, Md., on the right bank of the Patuxent River about 43 miles below the Chesapeake Beach Bridge.

Its wharf is a new wooden-pile structure in good condition. It is a T in shape, with a wharf end 44 by 45 feet, a pier 15 feet wide, and a length over all of 210 feet. Its piles are braced horizontally. There is no warehouse and no mechanical handling devices on the wharf.

No steamboat stops at this wharf, but it receives about 32 dockages per year from vessels, barges, etc.

The outgoing freight consists of canned tomatoes, and will amount to 500 cases per year. The incoming freight consists of 500 empty cases per year.

All loading and unloading is done by hand or with hand trucks over a gangplank.

This wharf is open to use by all water carriers on equal terms.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

(*b*) The nearest railroad is at Mechanicsville, Md., about 19 miles distant.

(*c*) An unimproved wagon road leads to Pearsons post office, Md.

(*e*) The Susquehanna Wharf, with about 2 miles of water front, is owned and operated by Richard Hidden & Co.

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21. POTOMAC RIVER AT MOUNT VERNON, VA.

(*a*) Mount Vernon, Va., is located in Fairfax County, Va., on the right bank of the Potomac River about 14 miles below Washington, D. C.

In shape its wharf is an irregular septagon, connected to the shore by a pier 126 feet long and 30 feet wide. The sides of the wharf vary from 18 to 40 feet in length. It is a concrete crib structure with a paved brick floor. An open shed, following in general way the shape of the wharf end, is on the wharf. There are no mechanical handling devices.

A slight amount of household supplies, feed, etc., is the only freight received, and there are no shipments. For the year ending April 30, 1912, 49,754 passengers arrived and 49,754 passengers departed from this wharf. Passengers are landed and embarked over the ordinary gangplanks. This wharf is closed to all water carriers except the Mount Vernon & Marshall Hall Steamboat Co.

(*b*) An electric railway passes about one-third of a mile from the wharf, but there is no physical connection and no interchange of traffic between the wharf and the railroad.

(*c*) An improved wagon road leads from the wharf to the house and other buildings belonging to the estate of Mount Vernon.

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22. NANDUA CREEK, VA.

(*a*) Nandua Creek is a tidal estuary of the Chesapeake Bay, located about 105 miles below Baltimore on the eastern shore of Virginia. It is about 7 miles long.

Two ports, Nandua and Cedar View, are located on this creek, both on the left side. Each of these ports has a single pile wharf, in good condition. The Nandua Wharf sets against the shore, while that of Cedar View is connected to shore by a long pier. The Nandua Wharf has two warehouses; the Cedar View Wharf has an open shed with one end closed in to form a small warehouse. There are three oyster hoisting frames on the two wharves. Both of these wharves are in telephonic communication with the surrounding country. There are about 822 dockages per year on the Nandua Creek, and about 600 passengers arrive and depart per year.

The outgoing freight consists principally of potatoes, sweet potatoes, cabbages, and onions, and will amount to about 9,500 tons per year.

The incoming freight consists principally of general merchandise, furniture, groceries, and fertilizer, and will amount to about 5,000 tons per year.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

All loading and unloading is done by hand or with hand trucks over gangplanks.

The wharf at Nandua is open to use by all water carriers on equal terms. The wharfage rates are as follows:

Steamboat freight, 15 per cent of transportation charge.
Vessel freight, 10 cents per ton.

The wharf at Cedar View is closed to all water carriers except the Baltimore, Chesapeake & Atlantic Railway Co.

(*b*) There is no physical connection between any railroad and either of the ports of Nandua Creek and no mutual contract for the interchange of traffic.

(*c*) Both wharves are accessible from land by unimproved wagon roads.

(*d*) The terminal facilities on Nandua Creek are ample for the present traffic and for such future traffic as can now be foreseen.

(*e*) The wharf at Nandua is owned by Capt. J. C. Boggs and operated as a public wharf; that at Cedar View is owned by the Baltimore, Chesapeake & Atlantic Railway (Steamboat) Co., and its use is confined to that company.

Transfer and delivery is made in the territory tributary to Nandua Creek by the patrons themselves. There are no regular transfer or delivery firms.

NANDUA, VA.

(*a*) Nandua is located in Accomac County, Va., on the left bank of the Nandua Creek, about 5 miles from its mouth.

Its wharf is a pile structure in good condition. It is nearly rectangular in shape, with a river face 135 feet long and a depth of about 60 feet. There are three open sheds on the wharf, and two warehouses. A general store and barrel factory are on the shore close by. There is an oyster hoisting frame on each end of the wharf. The wharf has telephone communication with the surrounding country.

This wharf receives about 562 dockages per year from vessels of all sizes and classes for the purpose of discharging or receiving cargo. It is estimated that about 300 passengers arrive and depart per year. The outgoing freight is principally potatoes, sweet potatoes, cabbages, and onions, and will amount to about 72,000 pieces per year. In addition, there is shipped from the shore alongside the wharf about 350,000 feet b. m. of lumber and mine props. The incoming freight consists largely of general merchandise, furniture, groceries, and barrel materials, in amounts as follows:

	Tons per year.
Steamboat freight	3,200
Hoops	200
Heads	160
Staves	400
Coal and brick	100
Total	4,060

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.
(*e*) Ownership of water front.

All loading and unloading is done by hand or with hand trucks across a gangplank.

This wharf is open to use by all water carriers on equal terms. On steamboat freight the wharfage rate is 15 per cent of transportation charges. On vessel freight passing over the wharf the rate is about 10 cents per ton. No charge is made for articles loaded or unloaded from shore.

(*b*) The nearest railroad is at Keller, Va., 5½ miles distant.

(*c*) An unimproved wagon road leads to Pungoteague, Va.

(*e*) This wharf, with about 1 mile of water front, is owned and operated by Capt. J. C. Boggs. Its gross revenue is about $1,500 per year. Service of the most distant patron requires a haul of about 3 miles. There is no person or firm in this vicinity engaged exclusively in the transfer and delivery business.

CEDAR VIEW, VA.

(*a*) Cedar View is located in Accomac County, Va., on the left bank of Nandua Creek, about 3 miles from its mouth.

Its wharf is a pile structure in good condition. The wharf end is about 100 by 63 feet, the pier is 16 feet wide, and the length over all is 672 feet. The wharf has telephone communications with the surrounding country. A large open shed, 72 by 20 feet, and a small office are on the wharf. There is also one oyster-hoisting frame. A wooden handrail passes on both sides the full length of the pier.

This wharf receives about 260 dockages per year, and it is estimated that about 300 passengers arrive and depart each year.

The outgoing freight consists largely of cabbages, peas, potatoes and sweet potatoes, and will amount to about 1,500 pieces per week.

The incoming freight is principally fertilizer, hay, corn, and dry goods, in amounts as follows:

Steamboat freight, 300 pieces per week.
Barrel heads, 10,340 per year.
Barrel hoops, 7,375 per year.
Barrel staves, 182,950 per year.

All loading and unloading is done with hand trucks over gangplanks.

This wharf is closed to all water carriers except the Baltimore, Chesapeake & Atlantic Railway Co.

(*b*) The nearest railroad is at Painter, Va., 5 miles distant.

(*c*) An unimproved wagon road leads to Craddockville, Va.

(*e*) This wharf, with about 120 feet of water front, is owned by the Baltimore, Chesapeake & Atlantic Railway Co., and operated for the company's own uses.

No person or firm in the vicinity is engaged regularly in the delivery or transfer business. Service of the most distant patron requires a haul of about 2½ miles.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*e*) Ownership of water front.

REPORT OF LIEUT. COL. E. EVELETH WINSLOW, CORPS OF ENGINEERS, IN CHARGE OF THE NORFOLK, VA., DISTRICT.

[The letters (a), (b), (c), and (d) indicate subheadings as shown by footnotes.]

NORFOLK HARBOR, VA.

(a) There is submitted below a list of the wharves along the front of Norfolk Harbor, beginning at Sewalls Point, the northern end of the eastern side of the harbor, and extending in regular order around the harbor. These wharves are shown upon a map accompanying this report.

At Sewalls Point the most northern piers are long, timber piers, extending from shore to deep water, and built at the time of the Jamestown Exposition. These piers have long been abandoned and are fast going into decay. They could not be used now without extensive repairs.

The next pier is one belonging to the Atlantic Terminal Railroad Co., and is connected by an electric car line with the streets of Norfolk. At this pier connection is made by cars with a ferryboat extending to Newport News, Va. At the present time the ferryboat in use is for the transfer of passengers and baggage only, but the company operating this ferry has recently purchased a double-ended ferryboat and is altering this wharf and making a new terminal at Newport News, so that they will be enabled to transfer carriages, wagons, automobiles, etc.

The next pier is that of the Virginian Railway Co., which is a tall structure and is used exclusively for handling coal to vessels on both sides. The loaded freight cars are hauled by mechanical means to an elevated track, below which there are a number of adjustable chutes, through which chutes the coal is conveyed into the holds or bunkers of vessels. The cars are returned to a lower level by gravity on central tracks. At this pier all the coal is handled by mechanical means, and the appliances used are up to date and adequate for the purpose. Thirty thousand tons of coal can be handled from this pier in 24 hours.

Southward of the coal pier just mentioned there is a space of 4 miles of unimproved water front extending to Lamberts Point, the shores being used for residences and farm purposes, and the only thing in the way of landings that exist along this shore are a few steps leading down to the water for getting into or out of rowboats, etc.

At Lamberts Point are the main terminals of the Norfolk & Western Railway Co., consisting of three coal piers and two merchandise piers, with slips on each side of each pier, and, in addition,

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(a) General location and description.

the railroad company is now constructing the foundations of a new and improved coal pier on the north side of the three existing piers. At each of the coal piers the loaded cars are hauled, by mechanical means, to elevated tracks on top. The coal is dumped from cars on these elevated tracks through chutes which lead into the holds or bunkers of vessels, and the cars are then returned by gravity to the tracks on the ground level. All of this coal is handled by means of fairly efficient appliances, but it is said that the new pier now under construction will have a number of improvements. The capacity of the three piers is about 45,000 tons per day of 24 hours.

Each of the Norfolk & Western merchandise piers have large warehouses on them, and there are railroad tracks leading into these warehouses, and one of them has a track extending along the wharf on one side of one of the houses. One of these warehouses has a second story, with elevators for raising the freight to this story for storage purposes, but these elevators do not connect with vessels, and there are no other mechanical appliances for handling freight.

Next to these warehouse piers there is a wharf front, behind which there is a small shed for sheltering lumber piles, with a yard around for the temporary storage of lumber. This shed and yard have rail connections to the Norfolk & Western Railway tracks.

Southeast of Lamberts Point piers there is a space of about [illegible] miles of unimproved water front, and then follows a small terminal in the mouth of Tarrants Creek, where there is a brickyard landing, with a small dredge and bucket for unloading clay and other materials from barges or small schooners.

Next are the wharves of the Merritt & Chapman Derrick & Wrecking Co., on the shore of the main river. At these wharves the wrecking company's vessels tie up, and small quantities of materials are stored there, but they are not used for other mercantile purposes.

Then come the small Groner wharves, used for handling oysters and a small amount of lumber. These wharves have derricks operated by electric power for unloading lumber and oysters, and they are connected by an adequate roadway with the streets of Norfolk. There are no rail connections to these wharves.

The next wharf on the river is at Fort Norfolk. This is the property of the Navy Department, and there is a small open stone dock at which small vessels can land. The house at Fort Norfolk is used as a residence by a naval officer and the wharf is sometimes used by Navy launches.

Next to this there is a stretch of about 300 feet, now occupied by partially burned and decaying wharves, but the Norfolk & Washington Steamboat Co. has recentely obtained control of this property and is about to construct a terminal to take the place of the one now used by this company at Town Point, which will be mentioned later. These terminals are to consist of a slip, with a landing and a warehouse on both sides. There are to be no mechanical means for handling freight and there is no rail connection.

Next come the warehouse wharves belonging to the Norfolk Warehouse Corporation, where there is an ice plant, a cotton compress and modern cotton warehouses. These wharves also have no rail connection, all the cotton being brought by barges from the various railroad terminals along the harbor. In some cases, the cotton is

brought over on house barges, into and from which the cotton is rolled on trucks, and in other cases the loaded cars themselves are placed onto floats and are brought over for unloading. There is a small steam derrick for handling ice and land plaster (fertilizer), which is also unloaded at this dock, but there are no mechanical appliances for handling the cotton.

The next docks are those of the Norfolk Coal & Ice Co., where there is a small traveling crane for unloading coal barges or coal cars brought on floats.

The next wharf is that belonging to Jones & Co., with a two-story storehouse. A part of the same wharf is occupied by the Nottingham & Wrenn Coal Co. Neither has any mechanical appliances for handling freight.

This last-named wharf is just outside of the mouth of Smiths Creek, an arm of Norfolk Harbor, and across the mouth of which there is a drawbridge. Inside of this bridge, on the right side of the creek, there are two small marine railways, an oyster house, and Johns Bros. coal and wood yard. The only mechanical appliances at any of these wharves are at Johns Bros. coal and wood yard, where there is a traveling crane for unloading coal.

On the left side of the creek, and inside of the drawbridge, are the wharves of the Norfolk Sand & Gravel Co. and Batchelder & Collins. The Norfolk Sand & Gravel Co. has a sand elevator for raising sand from barges, an endless belt conveyor, and a traveling crane. Batchelder & Collins have a small yard where they store bricks and tiles, and they make use of a small derrick with electric power.

All the above-named wharves in Smiths Creek do a purely local business, and have no rail connection, except for cars brought in on floats.

On the main river, outside of and just above Smiths Creek, is Willcox Wharf. This is an open wharf, with a derrick and electric power, and is in miscellaneous use.

Next follows a short stretch of valuable residence property; then a small stretch of unimproved front; and then the Chesapeake & Ohio Railway Co.'s freight yard. The railroad terminal of this company is at Newport News, Va., 12 miles away on the other side of Hampton Roads, the freight cars intended for Norfolk being brought over on car floats and unloaded at the yard just mentioned. Some of these cars are unloaded directly into wagons on the various tracks in this yard, and others are unloaded at the freight sheds. There is no rail connection to this yard except by car floats. The large house at the dock is used also by the railway company's passenger steamer, which runs to and from its passenger terminal at Newport News, Va.

The next pier is that of the New York, Philadelphia & Norfolk Railroad Co., which is similar to the Chesapeake & Ohio Railway Co.'s terminal, and has no direct rail connection. At neither of these two railroad yards are there any mechanical appliances for handling freight.

Next, and to the rear of the New York, Philadelphia & Norfolk Railroad Co.'s pier, is the wharf of the Anheuser-Busch Brewing Association. This is a good wharf, where vessels can load and unload,

and there is a spur track connecting it with the freight yards. Between this brewing association's wharf and the next wharf to be mentioned there is a deep slip, at the upper end of which there is a free public wharf, and large quantities of fish, oysters, and some truck are unloaded here from small boats.

The next wharf is that of the Merchants & Miners Transportation Co., which runs boats between this port and a number of other cities on the Atlantic coast. This is a very long wharf, and is of sufficient size to accommodate several ships at a time. It contains a large warehouse, in which there are four tracks which have connection, through more than a mile of Norfolk streets, with the Norfolk & Western Railway Co.'s freight terminal at the east end of the older part of Norfolk. Most of the freight handled at this dock is by hand trucks, although for certain purposes a small number of electric trucks are used.

At the head of the next slip, which is at the west end of main street, there is a sort of landing, in free use occasionally by small boats.

The next wharf is that of the Baltimore Steam Packet Co. (Old Bay Line). This is a long pier with slips on both sides of it, and has on it a long warehouse. There is no rail connection to this warehouse but at the rear of the dock there is a spur track connecting with the Norfolk & Western Railway Co.'s tracks through the streets of Norfolk. The Old Bay Line also controls the rear end and most of the center of the next dock on the other side of its left-hand slip. Here there is a warehouse, and on the farther side of the warehouse there are some sidetracks from the Norfolk & Western Railway, so that trucks can be rolled directly from boats through the warehouse and into the cars. Most of the freight handling is done by hand, though they have a truck operated by electric power. These two wharves just mentioned are used by the Old Bay Line for local business, or for connection with the Norfolk & Western Railway, and for receiving truck brought in from the vicinity in small boats. Where the Bay Line has any freight for or expects to receive any freight from the other railways running to Norfolk, the Bay Line steamers proceed to the piers of these railway companies for loading and unloading.

At the end of the second of the Bay Line Co.'s piers there is a warehouse of T. S. Southgate & Co. (distributers), which also has the same railroad connection mentioned above. At this point, known as Town Point, there is an angle in the dock line.

The next landing is that used by the Norfolk & Washington Steamboat Co., where the vessels lie parallel with the stream. At this wharf there is a small freight or baggage house and a shelter for passengers. The Norfolk & Washington Steamboat Co.'s wharf has no rail connection, their business being almost exclusively of a local character and where they have business with the railroad companies the steamers of this company go to the wharves of the railroad companies. The freight at the Norfolk & Washington Steamboat Co.'s wharf is handled by hand trucks only.

The next wharf is that of the Atlantic Coast Line Railroad Co. consisting of a freight shed and a passenger-barge landing. This wharf is used by the railroad company only for handling local freight and passengers, the main terminal being on the other side of the river at Pinners Point, as will be described later. The freight

Norfolk is brought over on car floats, the cars remaining on the floats until they are unloaded and reloaded.

The next wharf is that of the Southern Railway Co., of the same character as that of the Atlantic Coast Line Railroad Co. just mentioned. This wharf is used by the Chesapeake Steamship Line (New Bay Line to Baltimore). The Southern Railway Co.'s warehouse has a siding connected with the tracks of the Norfolk & Western Railway, but this track is practically unused, any connection between the railway companies being made by means of a belt line railway. All the freight at both of the last-mentioned railway companies' docks is handled by hand trucks.

The next wharf or dock is that of the Norfolk Southern Railroad Co., which has no rail connection, the freight being handled by hand trucks. As with the other two railway companies just mentioned, the freight cars are brought over on barges, are unloaded and reloaded while standing on the barges.

The next wharf is now unused and is in bad condition; and then comes a small wharf which is used about three times a week by a small freight boat running to Petersburg, Va.

The next wharf is that of Joseph M. Clark & Co., a company controlling tug boats. A part of this wharf is used by a junk dealer, but ts main use is a temporary place for tugs to tie up.

Next comes the Roanoke dock, extending up into one of the streets of Norfolk. This dock is used by small truck boats from this vicinity, which sell their vegetables and other produce to the commission merchants whose stores extend on both sides of this slip and on the streets adjacent to it. This slip is a public one and is open to all, but wharfage is charged by the various owners of the contiguous property.

The next is a small landing wharf, called Campbell's Wharf, and n use by the Navy Department as a landing place for their tugs and launches making connection with the Norfolk Navy Yard, naval ecruiting station, naval vessels, etc.

The next landing is that of the ferries to Portsmouth and Berkley. These ferryboats are double-enders and carry passengers, wagons, utomobiles, etc.

The next wharf is that of the Water Front Coal Co. At this wharf here is a traveling crane and traveling hopper for loading and unloading boats. There is no railroad connection, except by barges.

The next is the wharf of Feuerstein & Co. (Inc.), fish and oyster ealers, and then comes the wharf of George W. Taylor & Co., coal ealers. At this wharf there are two slips and two warehouses, and or the handling of coal they have an iron derrick mounted on an iron ower.

The next are the three wharves of the Old Dominion Steamship o. In the center of the middle pier there are three tracks, making onnection with the Norfolk & Western Railway on Water Street. he larger ships tie up in the middle of the slips, and, by means of a ng gangboard, have connection with two piers at once. Most of e freight is handled by hand trucks, but the company also makes se of a small electric truck, and has three endless-belt conveyers.

The next above is Duvall's wharf, which is the terminal of the eople's Line, running small passenger and freight boats through

the canals into North Carolina. This wharf is also used as a place for boats to tie up while undergoing repairs at Duvall's machine shops.

The next two piers belong to the Clyde Steamship Co., at the western one of which there is a railroad track connecting with the Norfolk & Western Railway on Water Street. The other one of the Clyde Steamship Co.'s piers is used by the Bennetts Line, running small boats into North Carolina. This pier, though, has no rail connection, and on both piers freight is handled by hand trucks only.

Next comes the wholesale warehouse of L. J. Upton, extending along the water front, in the rear of which there is a siding from the Norfolk & Western Railway. There are no mechanical appliances for handling freight, and, in fact, no freight is transferred from water to rail at this dock.

The next wharf is that of Baugh & Sons Co., with a large warehouse. They have a siding connected with the Norfolk & Western Railway, and have a derrick in front for lifting materials from barges. There are no other mechanical means for handling freight.

Next in order comes the wharf of Gwaltney & Co., grain dealers having a Norfolk & Western siding in rear. They have an elevator for handling grain from this siding, but all water freight has to be handled by trucks.

Next comes the wharf of the Imperial Guano Co., with a Norfolk & Western siding in rear and wharf in front, with no mechanical appliances for handling freight.

Next is the large fertilizer warehouse of D. B. Martin Co., with a Norfolk & Western siding in rear and a wharf in front, at which there are two electric hoists for unloading boats, but no connection between the rail and wharf ends, except by trucks.

Next follow the local terminals of the Norfolk & Western Railway Co. Here there is a large wharf with sheds on it, and railroad tracks in rear. At this wharf the Clyde Steamship Co. makes all its through connections with the Norfolk & Western Railway. There are no mechanical means for handling freight.

Next comes a large grain elevator, with wharf room on three sides and railroad tracks to the building. This elevator has a capacity of lifting 3,000 bushels of grain a day from boats and of transferring 5,000 bushels a day to ships. Its storage capacity is 2,800 tons of grain.

Across the slip, in rear of the elevator just mentioned, is the warehouse of J. H. Cofer & Co. (Inc.). This is on a wharf and has a railroad in its rear. It contains four elevators for hoisting grain out of cars and has an automatic weigher for weighing and bagging grain.

Next comes the local Norfolk & Western coal pier, with a small slip and wharves on three sides. At this wharf there are four coaling towers, and on the eastern side there is a bridge for putting coal on deck lighters, the capacity of which is about 2,000 tons per day.

At this point the river is crossed by the bridge of the Norfolk & Western Railway Co.

Above the bridge just mentioned is situated the electric power plant of the Virginia Railway & Power Co., but there is no wharf or other water connection.

Then comes a short stretch of unimproved property; then the tugboat wharves of Joseph M. Clark, used by tugs and small boats; then the small launch wharves and marine railway of Craig Bros.; then a small wharf, in poor condition, pertaining to Hudson Bros.; then a strip of land with a few wharves in bad condition; and then Smith & McCoy's marine railway. Here there are a number of slips, at which vessels can lie while undergoing repairs; also a floating dry dock which can be sunk so as to handle vessels of about 15 feet draft. Then comes the small wharf and warehouse of the Sanford & Brooks Dredging Co., used as a storage place and for tying up their tug boats and dredges. The above wharves have no rail connection.

Just above the last-mentioned wharf the river is crossed by the Campostella drawbridge.

Above the Campostella bridge no improvements have been undertaken by the United States, and the only terminals are a number of piles marking the ends of the pipe lines of the Standard Oil Co. To these piles the oil barges are floated and the oil is pumped to the tanks a distance back on the shore.

On the southern shore of the Eastern Branch of the Elizabeth River and proceeding down this shore, immediately below the Campostella bridge, there is a small bulkhead wharf, used by the tug boats of the Norfolk Dredging Co.

Then comes a long stretch of property unimproved as to wharves, and then a small dock pertaining to the Atlantic Creosoting Co., with a steam derrick. This company has rail connection to their factory but not to their wharf.

The last-named wharf is near the bridge of the Norfolk & Western Railway Co. Then comes Colonna's marine railway and plant. At this plant there are no wharves, except for small boats, along the railways for hauling out boats. To this shipyard there is a track connection. Next follows a stretch of about one-half mile of unimproved property.

Then comes a group of wharves belonging to the Fosburgh Lumber Co., most of which are used as storage houses only, the loading of lumber vessels taking place at one wharf only. There are no mechanical facilities for the loading.

The next wharf belongs to Garrett & Co., wine manufacturers, who have a warehouse on the wharf and a track connecting it with a house further inshore. This track, however, is not used as a connection between rail and water transportation, as Garrett & Co. ship their products as case goods either by train on the spur track of the Norfolk Southern Railroad or by sending them to Norfolk by wagons.

The next is a small wharf—Cannon's—used for small boats to tie up to and receive water and supplies.

Next is the ferry slip of the Berkley-Norfolk Ferry.

Then comes an unused space containing a number of wrecks; then the Old Dominion Marine Railway Co.'s property. This company has several marine railways and wharves, at which vessels may lie while being repaired. The appliances are sufficient to haul out the yachts and ferryboats used in this vicinity.

Then comes Andrews's agricultural lime house. Following this there is another unoccupied strip, extending to a small wharf and house known as Armstrong's oyster house. Next comes the ferry slip of the Berkley-Portsmouth Ferry.

None of the above wharves have mechanical appliances for the handling of freight.

Next is a series of wharves pertaining to the Norfolk & Southern Railroad Co., forming their main terminal in Norfolk Harbor, the main freight line extending to this point. This terminal consists of one double-track car transfer barge, then a warehouse wharf having three tracks beside the warehouse and one entering its shore end. Beyond this is a slip, and then another warehouse wharf having tracks beside it. Next to the last-mentioned warehouse there is an open wharf with a track along its face, and there is a power derrick on this wharf for unloading heavy articles; but, with this exception, there are no mechanical facilities at the Norfolk & Southern terminals. At all of these terminals freight is handled by hand trucks only.

All these wharves at Berkley Point, from Fosburgh to the Norfolk & Southern wharves, have in rear of them a railroad track connecting with the Norfolk & Southern Railroad.

Beyond the Norfolk & Southern terminals there is an unimproved space, and then there comes the Norfolk Marine Railway Co.'s wharf for the repair of small boats. This has no rail connection or freight wharves. Then there is another unimproved space.

Then comes the wharf formerly used by the Pocomoke Guano Co. This wharf is in very bad condition and is now practically unused.

Following another short space of unimproved property there comes the United States Navy Department Recruiting Depot, called St. Helena. Along the Navy Department's property there are landings for the use of the receiving ships *Franklin* and *Richmond*, and a few other slips and docks which are used for torpedo boats and other vessels out of commission.

South of the Government property and up in a dredged creek or canal, and some distance from the river, is the property of the Turner Lumber Co., where there is a slip and a wharf on each side. On the north side there is a barrel-head factory, with a track running through it. Then another wharf, which has a lumber shed but no track. Their south wharf is an open wharf, but contains a railroad track for direct loading from cars to vessels.

Next follows the property of the Greenleaf Johnson Lumber Co., which also has a dredged canal connecting it with the river. The company's lumber shed is on the north side of its canal, with a spur track running part of the way on it. This track does not extend to the edge of the wharf where the boats tie up, and is not used for the transfer of lumber from cars to boats. On the south side of the canal there is a track, and logs are rolled from cars on this track into a log pond. In the canal there is a sluice gate which is opened at high water, and logs are thus floated into the log pond and the gate shut, maintaining a high-water level in the pond. This is essentially a method of locking logs into the pond. It is not used for locking boats.

South of this is some of the unused portion of the Greenleaf Johnson Lumber Co.'s wharf, where recently the harbor lines have been changed at the request of the Navy Department. The wharves fronting on the river at this place are now in bad condition and extend partly beyond the modified harbor line, and the question as to their removal is now in the courts.

Next follows a long piece of bulkheaded water front pertaining to the Surry Lumber Co., which is practically unused, and then there is a wharf used by this company having a track for loading direct into vessels. No mechanical appliances are used.

Then there is a short length of unimproved water front pertaining to the Poindexter estate.

Then the Norfolk Portland Cement Corporation's wharf, having a track extending into their mill. On the wharf there is a hoister and a conveyor for the handling of raw material.

Then follows the wharf of the Royster Guano Co., having railroad tracks extending onto it. There are several derricks on this wharf, but they are used only for unloading vessels, as the guano is mostly shipped by cars.

At this point the river is crossed by the Belt Line Railroad drawbridge.

The first wharf above the Belt Line drawbridge is the wharf of the Atlantic Coast Lumber Co., having a spur from the Belt Line Railroad to its mill, but has no means of mechanical transfer on the wharf.

Next follows G. S. Briggs Lumber Co., having two wharves, on one of which there are two tracks, with a steam derrick, and on the other of which there is a railroad track with no mechanical appliances.

Then follows the Pocomoke Guano Co.'s property, having a large shed on the land and two tracks on either side of it. The wharf has two elevators for unloading vessels connecting with a conveyor for transferring material to the mill, but everything handled from cars to vessels at this point has to be trucked.

Then follows the Texas Oil Co. This company has a wharf with a steam hoister and with pipe connections to their oil tanks, but no mechanical means of handling freight.

Then follows the Virginian Railway Co.'s drawbridge.

Some distance above the Virginian Railway Co.'s bridge is the Farmers' Guano Co., having an elevator and conveyor for unloading vessels at the wharf, while further back on shore there is a large warehouse having railroad connections.

Robertson Fertilizer Co. joins the Farmers' Guano Co. They have an elevator on the face of the wharf, and have track connections to their building.

Then there is a strip of unused property.

Then the Roanoke Lumber Co.'s property on what is called Money Point. There are a number of spurs into the property of this company, but only one reaches the water, and that is a trestle for rolling logs into the log pond. There are no means of handling other freight.

Then comes the property of the Norfolk Creosoting Co., having three tracks from the Belt Line Railroad that reach to wharves along the water. They also have a number of derricks beside these tracks for handling logs and piles, and have a derrick lighter for unloading barges, etc., from the wharf.

Then follows the property of the United States Wood Preserving Co., which has a spur from the Belt Line Railroad out to their piers. They have a traveling crane for transferring purposes, although nothing is transferred directly from boat to rail by it.

Beyond a strip of vacant land is the property now in use by the J. R. Young Fertilizer Co., where there is a steam hoist for unloading vessels, and a chute for loading. There are railroad connections in the rear.

Next follows the Norfolk & Western Railway Co.'s drawbridge.

On the east side of the Southern Branch of the Elizabeth River, above the Norfolk & Western Railway bridge, and between it and the terminal lock of the Chesapeake & Albemarle Canal Co., there is but one wharf, or terminal, that of a distillery, where there is a small wharf used for handling grain from boats to land, but having no railroad connection.

On the west side of the river, between the canal lock and the Norfolk & Western Railway Co.'s bridge there are the wharves of three lumber companies—the Richmond Cedar Works, located a short distance below the canal lock; the sawmill of E. A. Buell, just above the mouth of New Mill Creek; and the property of the Barnes Manufacturing Co., just below this creek. At each of these places the wharves are used only for the business of the lumber companies, and no transfer of freight between water and rail takes place. By means of the Elizabeth River Railroad there is a rail connection from these sawmills to the other railroads at Norfolk.

On the left bank of the stream below the Norfolk & Western Railway bridge, the first wharf is for the juniper mill of the Roper Lumber Co., having one drag track to the mill, and another onto a trestle out into the water for dumping logs into the log pond. There are no other mechanical means for handling freight.

Next are the pine-mill wharves of the Roper Lumber Co. There are three wharves here with tracks on them, but the tracks are not used for the purpose of transfer from water to rail. On the sides of these wharves there are slips, but this pine mill has not been utilized for over a year.

Next follows the original, and now abandoned, end of the Dismal Swamp Canal.

Then follows the United States Naval Magazine, at what is called Gilmerton.

Then follows a long strip of unimproved property, extending to the Virginian Railway Co.'s drawbridge. Immediately north of this bridge this railway company has a wharf consisting of a slip with track on either side, but no mechanical devices for loading or unloading.

Then follows an unused space, and then the Dickson Lumber Co.'s wharf, which has been allowed to fall into bad condition.

Next come the wharves of Baugh & Sons (fertilizer), where there is an electric elevator for unloading vessels, with a spur track from the Belt Line Railroad to the building, but there is no direct connection between rail and water on the dock.

Next follows the Belt Line Railroad bridge.

North of the Belt Line bridge is the wharf of Charles Reid's Sons stave yard. This wharf has a track on it, so the staves may be transferred from cars to ships.

South of this point the river front for about a mile is occupied by the United States navy yard.

Then follows several hundred feet of unused property, where there is a wharf rapidly falling into decay.

Then follows the United States buoy depot, pertaining to the Lighthouse Department.

North of the buoy depot there are two wharves of the Seaboard Wharf & Warehouse Co., having connections with the Seaboard Air Line Railway tracks. There are no mechanical appliances for the handling of freight on this property, and the wharves are not in actual use at present.

North of this come some practically abandoned wharves of the Atlantic & Danville Railroad Co. (from which the tracks have been removed), this railroad, now a part of the Southern Railway system, now using terminals farther north, at Pinners Point, as will be hereinafter described.

Then follow the wharves of the Seaboard Air Line Railway Co. Wharf No. 1 is a lumber wharf only. It has three tracks on it, but lumber is handled by hand only. Wharf No. 2 is parallel with the river, and has a spur track in rear of it. This wharf is now but little used. Wharf No. 3 is a long wharf, parallel to the water front, containing a warehouse, and it is this wharf that is used for the transfer of passengers and merchandise from the Seaboard Air Line Railway in the city of Portsmouth to the Bay Line and other steamers. There are two tracks into the rear of this wharf, but all freight is handled by hand.

Then follows a little wharf used by Navy launches.

Then follow the three ferry slips pertaining to the ferry company running boats to Berkley and Norfolk.

Then come the wharves used by Priddy & Co. for landing lime and plaster. These wharves have elevated platforms in front, so that the lime may be received on the second floor. In rear of the building there is a siding of the Seaboard Air Line Railway on a level with this wharf.

Then follow the principal wharves of the Seaboard Air Line Railway. Wharf No. 6 has a warehouse, with two tracks on the north side of it and slip on each side of the wharf. Wharf No. 7 has a warehouse with two tracks down the center and slip on each side. Wharves Nos. 8 and 9 are together, having slip on south side of No. 8 and on the north side of No. 9, with three tracks between the warehouses. No. 10 is an open wharf, having three railroad tracks on it and a coaling tower for tugs. Wharf No. 10 also has a double track car bridge for transfer of cars to and from floats. Wharf No. 11 is used for loading logs and lumber only, and has track on the north side. Wharf No. 12 extends out in northerly direction and has two tracks on it, one on each side, for unloading logs and lumber from cars.

From this point northward there is a long space of unimproved water front used for residence purposes only.

Then comes the United States Naval Hospital grounds. At the latter there is a small boat landing in front of the commanding officer's quarters, and at Hospital Point, on the main river, there is a wharf used by naval tugs for unloading supplies and for the transfer of sick sailors.

The naval hospital grounds at this point extend up along the right bank of Scotts Creek to the wharves of the Frank Hitch Lumber Co. There is a mill in the rear of these wharves, and a large part of the lumber shipped is moved from the mill to the wharf on

hand cars, but there is a spur-line track from the Atlantic Coast Line Railroad for taking logs into the log pond near the mill.

On the shores of Scotts Creek above the drawbridge, crossed by the spur track just mentioned, there are a few small wharves for oyster boats, with shucking houses on them, but there are no connections, and the wharves are not used for other purposes.

North of Scotts Creek comes Pinners Point, and here are located the main terminals of the Atlantic Coast Line Railroad Co. and of the Southern Railway Co. and a large guano plant. Going northward they are as follows:

Atlantic Coast Line Railroad has one double-track trestle with slip on each side; then a double-track transfer bridge; then three merchandise piers, with warehouses, the first having three tracks on the south side and a slip on the north side. The next two piers are together, having tracks down the center between warehouses, and having slips on either side. Freight handling here is done by hand.

Southern Railway pier No. 1 has a warehouse on it, with four long and three short tracks entering it. No. 2 has three long tracks on it. Next to pier No. 2 there is a car bridge for transferring cars to floats. Here follows a space for another pier, which would naturally be pier No. 3, but which has not been built; but in the rear of the slip there is a wharf used by the Virginia-Carolina Chemical Co.

Next follows Southern Railway pier No. 4, consisting of warehouse with tracks down center and slip on each side.

All handling of freight at the Southern Railway docks is by hand.

North of the Southern Railway piers there is a long space of unimproved water front extending to the Port Norfolk terminal of the New York, Philadelphia, & Norfolk Railroad Co. This is the point to which the freight cars are brought on floats from Cape Charles City, Va., on the other side of Chesapeake Bay, and here connection is made to the Belt Line Railroad, and through it to the other railroads entering Norfolk Harbor. At this point there are four double-track car bridges and a warehouse having three tracks on the west side of it. There are no mechanical appliances here for handling freight. This terminal is located really at the mouth of the right bank of the western branch of the Elizabeth River.

On the other side of this branch, at West Norfolk, there are some wharves formerly used by the Atlantic & Danville (Southern Railway), all of which, however, have been allowed to fall into decay, except one, which is used by the Eustis Copper Co. for unloading ore from ships. This wharf contains two tracks and a steam derrick.

There have been listed above all the wharves fronting on Norfolk Harbor, and with the exception of the few small slips in public use by small fishing and truck boats, which were specially noted, all the wharves are under private control, and used for special purposes only; but these wharves are so numerous that practically they supply all the needs of the place. Movements are on foot, however, in both Norfolk and Portsmouth, with the object of securing public docks to be controlled by the respective cities.

(*b*) As has been mentioned above, there is physical connection between the railroads and a large proportion of the docks at Norfolk. The Virginian Railway Co. has its main coal terminal at Sewall-

(*b*) Physical connection between water terminals and railroads.

Point, and could provide railroad connection to any wharves in its vicinity. The Norfolk & Western Railway Co. has its main terminals at Lamberts Point, and has connection now with all existing wharves in the vicinity. The next wharf having physical connection with the railroads, other than by car floats, is the Norfolk & Western terminals on the north side of the Eastern Branch of the Elizabeth River near the Norfolk & Western Railway bridge. From this point, as has been stated, there is a track extending along Water Street of Norfolk and connecting with all the docks as far to the westward as the Merchants & Miners Transportation Co.'s wharf. On the south side of the Eastern Branch of the Elizabeth River there are spur tracks running from the Norfolk & Western Railway to wharves in its immediate vicinity. At Berkley Point, where the Eastern and Southern Branches of the Elizabeth River come together, there are the terminals of the Norfolk Southern Railroad, and there is a spur track extending eastward from that as far as the Fosburgh Lumber Co.'s dock. Southward from the Navy Department's property at St. Helena, all the way to the Norfolk & Western Railway Co.'s bridge, there are railroad connections, either with the spurs of the Belt Line Railroad, with the Virginian Railway, or with the Norfolk & Western. Above the Norfolk & Western Railway bridge the Southern Railway is crossed by the Elizabeth River Railroad, having connection with the other railroads at Norfolk and extending along the western side of the Southern Branch up as far as Richmond Cedar Works. On the western side of the Southern Branch, from the Norfolk & Western Railway to the terminals of the Seaboard Air Line Railway at the city of Portsmouth, all existing docks have railroad connections, and similar extensions could be made to all unimproved property. At Pinners Point are the main terminals of the Atlantic Coast Line Railroad and the Southern Railway, and farther around on the south shore of the Western Branch are the connections between the Belt Line Railroad and a car-transfer bridge of the New York, Philadelphia & Norfolk Railroad. On account of the number of railroads running into Norfolk, and the fact that their terminals are scattered at so many different places, nearly the whole of the harbor front has now physical connection with railroads.

However, it is practically at the main terminals of the railroads only that there is any transfer of freight from cars to steamers, and practically all of this is on through bills of lading, with prorated charges.

In fact, it is complained of by the merchants of the vicinity that there is such a close connection and community of interests between the railroads and steamship lines that much of the through freight that should properly be exported to Europe at Norfolk is carried farther north.

(*c*) To all the wharves and terminals mentioned above, except those on the upper part of the Southern Branch of the Elizabeth River, there are either street or highway connections, some of which are in good condition and some of which are only in fair condition.

(*d*) There is no apparent need for additional water terminals. In fact, freight could be handled better in this harbor if the number of railroad terminals were smaller and those that existed were in better condition and were more efficient.

(*c*) Connection with highways.
(*d*) Necessity for water terminals.

HAMPTON CREEK, VA.

(*a*) The head of navigation on Hampton Creek is the county bridge which crosses the stream about three-fourths of a mile above its mouth.

There are a number of wharves on this creek, all privately owned except one, the "city wharf," which is the property of the county. This wharf is leased to and maintained by the Old Dominion Steamship Co., but under conditions that are understood to provide for its use by the public, upon the payment of proper wharfage charges.

Private commercial wharves are located on the west shore of the stream. These are those of Hudgins Bros., coal and wood dealers; F. W. Darling, oyster planter and packer; The Heffelfinger Co. (Inc.), dealers in lumber, coal, wood, and building material; McMinaman & Co., crab packers; and the wharf of Armstrong Bros., oyster packers. There is also located on the west side of the creek, between Darling's and Heffelfinger's wharves, a small marine railway of a capacity sufficient to handle the oyster boats used in this vicinity. There are in addition, on the west side, a few small-boat landings of no commercial importance.

On the east side of the creek most of the wharves are small private rowboat or launch landings. There are, however, three large private wharves, one belonging to the Hampton Normal School, one to the Huntington Industrial Works, a branch of the school, and one to the National Soldiers' Home.

On the shore of Jones Creek, a tributary from the east, the Huntington Industrial Works and the National Soldiers' Home have landings.

On Herberts Creek, a tributary from the west, there are some small landings, owned and used by the street railway company, for unloading certain classes of supplies.

All the wharves mentioned, except the one public city wharf, are for the private use of the owners or persons having business with them.

The public wharf is used by the Old Dominion Steamship Co.'s boats running from Hampton to the other cities and harbors on Hampton Roads. This line has a practical monopoly of business of this character.

(*b*) None of the wharves on Hampton Creek have railroad connections, the railroad crossing the creek some distance above the county bridge that marks the head of navigation. No freight is transferred between rail and water on this creek.

(*c*) All the wharves are connected with the city streets, usually in good condition.

(*d*) No additional wharves seem to be needed at present.

NEWPORT NEWS, VA.

(*a*) Newport News is a separate municipality from Norfolk, and is situated on the other side of Hampton Roads. The appropriations

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

for providing a deep channel to Newport News were originally carried under separate appropriation, but in recent years this work has been carried on as one of the items under the general head of Norfolk Harbor.

Newport News is situated on the left bank of James River at its mouth, in Hampton Roads, and beginning at the northwest end and going downstream the wharves and docks are as follows:

The first series of docks pertains to the Newport News Shipbuilding & Dry Dock Co. There are seven piers, some of which have launching ways for small vessels and others for larger vessels up to the largest size battleships. There are also a number of piers with wide slips between them for handling freight, and on a number of these are heavy cranes, derricks, and shear legs for handling the heaviest kind of freight. This shipyard has connection through a tunnel with the Chesapeake & Ohio Railroad tracks. All of the property of the shipyard is used exclusively for its own purposes, and there is no transfer of freight from water to rail at these docks.

Eastward of the shipyard there is a little space of unused water front and then Finch's Pier. This is used for the tieing up of small vessels, and there is a small repair shop connected with the pier.

Then follows another stretch of unused water front.

Then comes the Old Dominion Land Co.'s pier, which is a long and wide public wharf for use by all vessels, but there are no rail connections or mechanical appliances.

Then there is a "pen" where small boats may tie up in harbor.

Then follow the terminals of the Chesapeake & Ohio Railroad. The first pier is the so-called Jamestown Ferry Pier, used for the transfer of passengers to the steamer which connects with the harbor at Norfolk. Next comes Pier 1, a warehouse pier, with tracks on either side. Pier 2 is an elevated coal pier, the cars being run in at a high level and the coal dumped through chutes into the vessels below. These cars are automatically returned by tracks through the center. Pier 3 is another coal pier similar to No. 2, but a little longer. Pier 4 is a covered merchandise pier, with two tracks down the center. It has a second floor, reached by six elevators, and vessels can be loaded with freight from either floor of the pier, but freight is handled by trucks exclusively. Pier 5 is another covered merchandise pier, with tracks in the center, and a conveyer on each side connecting with elevator A. Pier 6 is a covered merchandise pier, with two tracks in the center, but no appliances. Pier 7 is used solely for the tying up of the tugs and other boats. Between Piers 7 and 8 is a car-transfer barge, over which freight cars are transferred to car floats for transportation to Norfolk or other points. Pier 8 is a covered merchandise pier, with two tracks in the center and one track on the right side, over which there is a 30-ton elevator crane. On the left side of this pier is a conveyer to elevator B. Pier 10 is another coal pier similar to No. 2, but higher. Pier 11 is planned, but not yet constructed, and Pier 12 is another coal pier still larger than No. 10. The two elevators situated at the shore end of the piers have capacity as follows: A, 1,500,000 bushels; B, 750,000 bushels.

Around the curve, some distance farther to the northeast, is the Ivy Avenue Pier, a long, narrow pier, with wharf end constructed

for the use of the ferry to Sewells Point. The tracks of the Newport News electric street railway system extend onto this pier.

The above comprises the piers at Newport News, and all are private piers except the one public pier mentioned, which is open to all vessels on equal terms upon payment of wharfage. The Chesapeake & Ohio terminals belong to the Chesapeake & Ohio Railroad Co. and are for the use only of vessels having business with them.

(*b*) Physical railroad connection exists between the Chesapeake & Ohio Railroad and the shipyard docks and the railroad company's docks, but no other. A large part of the freight handled by the Chesapeake & Ohio is through freight on through bills of lading, transferred by the railroad company to vessels at its dock.

(*c*) All of the docks mentioned are connected with the street system of Newport News.

(*d*) There does not appear at present any demand for additional docks.

NANSEMOND RIVER, VA.

(*a*) The navigable portion of the Nansemond River extends from its mouth in Hampton Roads, Va., up to the town of Suffolk, a distance of 18 miles. At Suffolk, above the small drawbridge, there is a very small marine railway and two small oyster wharves, all private and of but little importance. On the left bank of the river below the drawbridge there is a private coal wharf.

On the right bank below the bridge are located the main Suffolk terminals, consisting of what is essentially one long, continuous wharf divided into three portions. One portion pertains to the Old Dominion Steamship Co., which runs regular boats to the other wharves farther down the Nansemond River, and to the towns on Hampton Roads and to Norfolk Harbor. This is a public wharf. The other two parts are private wharves, one pertaining to the Mount Airy Guano Co. and the other to the Norfolk & Western Railroad, and having rail connection between it and the tracks of the Norfolk & Southern Railroad and indirectly with the other trunk lines passing through Suffolk.

Below Suffolk there are a number of wharves (mentioned below), all of which are more or less alike, each consisting of a pier extending out from the shore toward deep water, and having at the outer end of the pier a wharf head with a shed or wharf house whose size depends upon the amount of business. These wharves are all for public use, but none of them have any mechanical means for handling freight. Their principal business is done with the steamers of the Old Dominion Steamship Co. or with gasoline boats belonging to private owners.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

The wharves along the river are as follows:

Name of wharf.	Side of river.	Distance below Suffolk.
		Miles.
)livers	Left bank	2¾
;owers	Right bank	3½
;yles	Left bank	4½
Villroys	Right bank	5½
;elds Ferry	Left bank	8
rotmans	Right bank	9
odwins	Left bank	10¼
leepy Hole	Right bank	11½
erry Point	Left bank	13
askins	Right bank	14
ees	do	15

All the wharves mentioned as public are open to all boats upon ayment of wharfage charges, though business is in practice almost ntirely restricted to the Old Dominion steamboats and small sail r gasoline boats belonging to or leased by the farmers and used to elp out the steamboats at times of congestion of traffic. The wharfge charges are usually a few cents per package landed or loaded, deending upon the character and size of package. In practice this harfage is charged as an item on the freight bill and collected with ıe freight charge by the transportation company, the amount of harfage collected being periodically paid to the wharf owner.

(*b*) The only point on the Nansemond River reached by railroads Suffolk and the only wharf having any rail connection is the Norlk & Southern wharf at Suffolk, as mentioned above. Much of e freight transferred from rail to boat at this wharf is on through lls of lading. At all of the wharves along the river a large amount truck is loaded on to the Old Dominion steamboat and is later ansferred to other vessels in Norfolk harbor and sent to northern ints, all being handled on through bills of lading.

(*c*) The wharves at Suffolk are connected with the streets of that wn, which are in fair condition; each of the other wharves has a adway to it. In good weather these roads are in good condition; t, like the other roads in this vicinity, some of these are in very or shape for hauling after bad weather.

(*d*) The existing wharves on the Nansemond River seem to be ficient for the present business.

JAMES RIVER, VA.

The head of navigation on the James River is the city of Richnd.

At Richmond, Va., on Left Bank of River.

RICHMOND DOCK (PUBLIC).

(*a*) Richmond Dock was recently acquired by purchase by the city Richmond, Va. The dock is a part of what was formerly the

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) General location and description.
) Physical connection between water terminals and railroads.
) Connection with highways.
) Necessity for water terminals.

basin for canal boats of the James River & Kanawha Canal. As the ground adjacent to the dock is about 18 feet above low tide, it is protected against all but very high freshets. The dock is about 3,45 feet long, with widths of from 75 to 150 feet. The center depth of the dock is about 15 feet. It is crossed near its lower end by a bridge of the Southern Railway Co., with an available draw opening for vessels of 50 feet. The dock is entered from the river through a substantial masonry lock, about 180 feet long and 35 feet wide, with a depth of about 15 feet on the miter sill. Water is supplied to the dock through the old James River & Kanawha Canal, by a feeder from James River, about 8 miles above Richmond. About 450 feet on the north side of the dock is owned by the Chesapeake & Ohio Railroad. The remaining 3,000 feet is owned by the city of Richmond. On the south side of the dock a strip 30 feet wide by 3,100 feet long belongs to the city. The strip is available for wharves but is unimproved. All of the dock frontage owned by the city of Richmond would be available for wharf purposes.

The dock has not been available for commerce for upward of a year until quite recently on account of the entrance lock gates from the river being unserviceable. New gates have recently been placed in the lock.

The average number of arrivals of vessels during a year at the dock while it was serviceable comprised about 275 small steamers, 65 sailing vessels, and 45 barges. The traffic in the dock has consisted almost entirely of receipts, principally of hard coal, asphalt blocks, fertilizer material, fish, and general merchandise. The dock has no mechanical conveniences for loading and unloading vessels. The greater part of the freight is handled by the crews of vessels.

For the amount of traffic handled the dock has been fairly efficient.

It is understood that the city of Richmond will allow all water carriers to use the dock on the same terms and conditions. These have not yet been published, being under consideration by a committee of the city council.

(*b*) The tracks of the Southern Railway extend along both sides of the dock for almost its entire length. There are no agreements for prorating of freight rates.

(*c*) A paved street adjoins the dock on its north side. The Furman Line has a small warehouse near the upper end of the dock.

S. H. HAWES & CO. (PRIVATE), DEALERS IN COAL, WOOD, ETC.

(*a*) A pile and timber wharf adjacent to and immediately below the entrance lock to Richmond Dock. It has a frontage of about 4[illegible] feet, with an available water depth of about 12 feet. The wharf is used during a year by about 20 barges laden with anthracite coal, which is unloaded and stored at the yard adjacent to the wharf by means of steam hoisting machinery, cranes, and dump cars. The wharf is private property and is used exclusively by its owners for receiving coal. It is entirely efficient for its purpose.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

The wharf is not open to use by other water carriers. Vessels belonging to others are allowed to lay at the wharf as an accommodation.

(*b*) There are three spur tracks extending to the wharf from the Southern Railway. There is no contract for prorating as to traffic carried partly by water and partly by rail.

(*c*) A paved street adjoins the wharf. There is no warehouse on the wharf.

OLD DOMINION STEAMSHIP CO. (PRIVATE).

(*a*) A substantial pile wharf below and adjoining the wharf of S. H. Hawes & Co. It has a frontage of about 428 feet, with available water depths of from 12 to 16 feet. It is covered by a warehouse for its full length. Behind the wharf is a large storage warehouse, and immediately behind this warehouse a spur track of the Southern Railway.

The wharf is used for passengers and freight carried by two steamers of the Old Dominion Steamship Co., which arrive and depart daily. It is also used by one steamer operated by the Virginia Navigation Co., which arrives and departs triweekly. The steamers of both lines ply between Richmond and Norfolk. The greater part of the water-borne commerce of Richmond is handled at this wharf, comprising all kinds of merchandise, machinery, tobacco, etc. Freight is handled principally by hand trucks. An electric telpherage system is used for moving heavy freight between the storage warehouse and vessels; also for coaling the company's steamers. The wharf is used exclusively by the vessels of the Old Dominion Steamship Co. and the Virginia Navigation Co., and is not open to other water carriers.

The wharf is highly efficient except during high freshets, when it can not be used, on account of being under water.

(*b*) The telpherage system above referred to constitutes a physical connection with the Southern Railway. Through this road connection is made with other railways at Richmond by switching.

There is a contract for prorating between the steamship company and the Southern Railway for a few stations on the line of the latter near Richmond.

(*c*) Paved streets adjoin the wharf.

RICHMOND CITY WHARF (PUBLIC).

(*a*) A light pile wharf, situated at the foot of Ash street, below and adjoining the Old Dominion Steamship Co.'s wharf. It has a frontage of about 40 feet, with an available depth of water of about 12 feet at the wharf. It is used by the city's steam tug. While the city dock was not available, during the last year it has been temporarily used by a small steamer plying between Richmond and Petersburg, belonging to the Furman Line.

The volume of freight handled at this wharf is small. It is loaded and unloaded by hand trucks. The wharf is small, but serves the purpose for which it is used.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

It is understood that the wharf is open to other water carriers to the limited extent to which this is practicable.

(*b*) A siding belonging to the Southern Railway is about 150 feet distant. There is no physical connection between the wharf and the siding.

(*c*) Paved streets adjoin the wharf. The wharf has a warehouse.

OLD DOMINION DEVELOPMENT CO. (PRIVATE).

(*a*) An old, unserviceable pile wharf, situated immediately below the Richmond city wharf, between Ash Street and Gillies Creek. It has a frontage of about 500 feet, with available water depths of 9½ to 14 feet. The wharf has no warehouse.

The wharf is out of repair, and has not been used for freight traffic for about seven years.

(*b*) The Southern Railway has a siding adjacent to the wharf, but there is no physical connection between the wharf and siding.

(*c*) The paved city streets adjoin this wharf.

NEW CITY WHARF AT RICHMOND (PUBLIC).

(*a*) The city of Richmond is now completing a substantial pile wharf, which extends about 700 feet downstream from Gillies Creek. The depth of water along the wharf front is from about 8 to 14 feet. It is proposed to increase the present depths for about 300 feet of the wharf front to 18 feet, or to the same depth as the improved channel, which is from 50 to 70 feet from the wharf. A railroad siding belonging to the Southern Railway Co. extends the full length of the wharf behind it, at from about 100 to 150 feet distant.

It is understood that this wharf will be open to all water carriers on equal terms. The wharf, however, is not yet in use, and the terms and conditions have not been published.

(*b*) There is no physical connection between the wharf and the above-mentioned railway siding.

(*c*) The paved streets of the city adjoin the wharf.

AT RICHMOND, VA., ON RIGHT BANK OF RIVER.

SOUTHERN RAILWAY (PRIVATE).

(*a*) The wharf is of stone on a pile foundation and is the property of the Southern Railway Co. It is situated about opposite the Old Dominion Development Co.'s wharf. It is about 560 feet long and has depths along its front of 10 to 12 feet. It is used by about 5 barges and 25 sailing vessels during a year. The proportion of the water-borne commerce of Richmond handled at this wharf is small. It consists principally of forest products, stone, and general merchandise. Vessels are loaded and discharged by hand and by a steam derrick. The wharf has a large warehouse.

The wharf appears to be sufficiently efficient for the purpose and extent used. It is free to all vessels.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*b*) The railroad company's tracks parallel the wharf close to its front, and freight is transferred directly between railway cars and vessels by the steam derrick above mentioned and by hand. There are mutual contracts for the interchange of freight between the railroad and vessels by prorating for such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) There is no highway extending to the wharf.

ALLISON & ADDISON (PRIVATE).

(*a*) The wharf is of stone on a pile foundation. It is immediately below and adjoins the Southern Railway wharf. It pertains to the Virginia-Carolina Chemical Co. It has a frontage of about 50 feet and an available water depth of about 13 feet. It accommodates vessels about 200 feet long. It has no warehouse.

The wharf is used solely for receiving considerable quantities of fertilizer material. About 4 sailing vessels and 12 barges discharge their cargoes at the wharf during a year. The vessels' cargoes are transferred by a steam derrick to small dump cars on an elevated trestle, on which they are moved to the factory and dumped.

The efficiency of the wharf meets requirements.

(*b*) The Southern Railway has a siding at the fertilizer factory.

(*c*) There is an ordinary country road leading to the wharf.

On James River Below Richmond, Va.

RICHMOND CEDAR WORKS (PRIVATE).

(*a*) A substantial pile wharf on the left bank, immediately below the southern or lower city limits of Richmond. It is about 60 feet from the improved channel, which has a depth of 18 feet. It has a frontage of about 250 feet, along which the depths are from 10 to 12 feet.

The wharf is used exclusively by its owners for receiving large quantities of logs and lumber, which are made into woodenware. One or two sailing vessels and upward of 200 barges discharge their cargoes of lumber and logs at the wharf in a year. The wharf is provided with mechanical appliances for the rapid discharging of lumber and logs from vessels and for conveying them to the woodenware factory. The wharf has not sufficient capacity for the business done by its owners. It is not open to the use of water carriers which are not employed by its owners.

(*b*) A siding of the Chesapeake & Ohio Railroad adjoins the factory to which the wharf pertains. The wharf owners own or charter most of the vessels which use the wharf, and there is no prorating with railways.

(*c*) There is no highway extending to the wharf. The wharf has no warehouse.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

(*b*) It has no connection with a railway. The nearest railway is several miles distant.

(*c*) There is an ordinary country road to the wharf.

DEEP BOTTOM (PUBLIC).

(*a*) A light pile wharf on the left bank, about 18 miles below Richmond. The wharf has a frontage of about 20 feet, in a depth of water of about 10 feet. It has no warehouse. The principal shipments are forest products, which are loaded by hand.

The wharf belongs to Henrico County, Va., and is free for use of residents of the county.

(*b*) There is no connection between the wharf and railroad. The latter is several miles distant.

(*c*) An ordinary country road connects with the wharf.

CURLES NECK (PRIVATE).

(*a*) A substantial pile wharf on left bank of river, about 20 miles below Richmond. The wharf has a frontage of about 140 feet, in water from 21 to 23 feet deep. It has a good warehouse. The steam packet of the Virginia Navigation Co. and the small steamer *Aurora* of the Furman Line, touch at the wharf almost daily. From 1 to 6 barges and 1 to 3 sailing vessels use it during a year. The wharf is provided with mechanical appliances for landing fertilizers. The wharf is used only in carrying on the business of the farm to which it belongs. It is efficient for requirements. It is not open to the public.

(*b*) The wharf has no connection with the railroad, which is about 7 miles distant.

(*c*) A private road leads to the wharf.

PRESQUE ISLE (PRIVATE).

(*a*) A substantial pile wharf on right bank, about 24½ miles below Richmond. The wharf has a frontage of about 63 feet, in water about 11 feet deep. It has a warehouse.

Traffic at the wharf is small, comprising farm products and supplies, which are moved by hand. The wharf is efficient for requirements. It is open to all vessels on the same terms and conditions. There is no outside demand for its use.

(*b*) The nearest railroad is several miles distant, and there is no connection between the wharf and railroad.

(*c*) There is a private road between the wharf and adjacent farm.

PICKETTS (PRIVATE).

(*a*) A crib and pile wharf, about 26½ miles below Richmond, on left bank of river. The wharf's frontage is about 60 feet, in water from 14 to 16 feet deep. The wharf is seldom used and it is in bad condition. It has no warehouse.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

The amount of freight handled at the wharf is small and is moved by hand.

(*b*) The wharf is remote from the railroad and has no connection with it.

(*c*) A country road leads to the wharf.

HARDENS (PUBLIC).

(*a*) A substantial pile wharf, on left bank, about 28 miles below Richmond. The wharf's frontage is about 64 feet, in water about 20 feet deep. The wharf has no warehouse.

The wharf is used daily by the steamer *Aurora*, of the Furman Line, and occasionally by a steamer of the Virginia Navigation Co. About 20 barges and 18 sailing vessels are loaded at the wharf during a year with forest products. The extent of business at this wharf is considerable. All freight is loaded and unloaded by hand. The wharf is fairly efficient for requirements.

All vessels are allowed to use the wharf on same terms and conditions. The following wharfage is charged for freight at the wharf: 1 cent per crosstie; 15 cents per cord for wood; 15 cents per M feet b. m. for lumber; 5 cents per box, crate, or bag for merchandise; and 10 cents for passengers.

(*b*) The wharf is remote from railways.

(*c*) A country road connects with the wharf.

SHIRLEY (PUBLIC).

(*a*) A light pile wharf on left bank of river, about 30 miles below Richmond. Length of front about 80 feet. Depth of water along front about 9 feet. The wharf has a small open warehouse.

The amount of freight handled at the wharf is small, and consists principally of farm products and supplies. The steamer *Aurora*, of the Furman Line, and the steam packet of the Virginia Navigation Co. touch at the wharf on week days. The wharf is also used by one or two sailing vessels in a year. Freight is discharged and loaded by hand. The wharf is efficient for requirements.

The wharf is free for all vessels to land.

(*b*) It is remote from and has no connection with railroads.

(*c*) A country road connects with it.

BERMUDA HUNDRED (PUBLIC).

(*a*) The wharf is constructed partly of crib work and partly of piling. It is on the right bank, about 31 miles below Richmond. It has a frontage of about 1,150 feet in water from 5 to 9 feet deep. It belongs to the Tidewater & Western Railroad, a narrow-gauge road extending to Farmville, Va. The railroad company has a warehouse near the wharf.

The wharf is used almost solely by vessels receiving lumber from the Tidewater & Western Railroad. Considerable lumber is shipped

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

from the wharf and small amounts of general merchandise received at it. During a year about 30 barges and 10 sailing vessels receive cargoes at the wharf. The small steamer of the Furman Line lands occasionally at the wharf. The wharf is not kept in good condition. Its efficiency, however, is adequate for requirements.

Lumber is transferred from the railroad cars to vessels on skids and by hand, and merchandise by wheelbarrows. All vessels are allowed to use the wharf without charge.

(*b*) The railroad tracks are close to the wharf front.

There is no traffic arrangement for prorating for long distances in respect to carrying freight partly by rail and partly by water to its destination.

(*c*) An ordinary country road extends to the wharf.

CITY POINT (PUBLIC).

(*a*) The wharf is a very substantial pile structure on the right bank of the river immediately below its confluence with the Appomattox about 32½ miles below Richmond. It has a frontage of about 690 feet in water from 15 to 20 feet deep. It has a large warehouse.

The wharf is used by the packet of the Virginia Navigation Co. six times per week, and by the steamers of the Norfolk & Petersburg Transportation Co. occasionally. It is also used by about 10 barges and 6 or 7 sailing vessels during a year. Freight is moved by hand trucks and skids, and vessels are loaded and discharged by their owners. The wharf is efficient for the purpose for which it is intended.

The wharf is open to all vessels on equal terms.

(*b*) The tracks of the Norfolk & Western Railway adjoin the wharf warehouse. There is no physical connection between the wharf and the railway tracks.

There is no mutual contract between vessels and the railroad company for interchange of freight by prorating for long-distance traffic.

(*c*) A country road extends to the wharf.

COGGINS POINT (PRIVATE).

(*a*) A light pile wharf on the right bank of the river, about 40 miles below Richmond. The wharf front is about 60 feet long in water about 10 feet deep. The wharf has a small open warehouse.

The traffic at the wharf is very small, comprising provisions, ice, etc. The daily steam packets land at the wharf on signal. Freight is moved by hand. The wharf is efficient for requirements.

The wharf is for private uses, and no vessels are allowed to use it excepting those having business with its owner.

(*b*) There is no connection of any kind between the wharf and railroad, which latter is 10 or 12 miles distant.

(*c*) There is a private road at the wharf, connecting with the country road, about 3 miles distant.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

WESTOVER (PUBLIC).

(*a*) A substantial pile wharf on left bank of river, about 40 miles below Richmond. The wharf's frontage is about 80 feet in a depth of water of about 12 feet. It has a small warehouse.

The wharf is used daily by the steamer of the Virginia Navigation Co. and that of the Norfolk & Petersburg Transportation Co., and occasionally by sailing vessels. The amount of freight received and shipped is small and consists of farm products and supplies and general merchandise. Freight is loaded and unloaded by hand.

The wharf is efficient for requirements. It is claimed to be free to the use of all vessels.

(*b*) The wharf is remote from railroads.

(*c*) An ordinary country road leads to it.

BLAIRS (PUBLIC).

(*a*) A light pile wharf on right bank of river, about 41 miles below Richmond. The wharf's frontage is about 65 feet in water about 11½ feet deep. The wharf has a small open warehouse. The steam packet of the Virginia Navigation Co. and that of the Norfolk & Petersburg Transportation Co. touch the wharf daily. About 7 barges and 12 sailing vessels also use the wharf in a year. The commerce is small, comprising shipments of forest and farm products and receipts of general merchandise and farm supplies. Freight is moved by hand. The wharf is efficient for requirements.

All vessels are allowed to land at the wharf on same terms and conditions. Wharfage is charged on all freight.

(*b*) The wharf is remote from and has no connection with railroads.

(*c*) An ordinary country road connects with it.

BUCKLAND FARM (PUBLIC).

(*a*) A substantial pile wharf on left bank of river, about 42½ miles elow Richmond. Length of front, about 60 feet, in water about 15 eet deep. The wharf has a warehouse.

The wharf is used almost entirely for shipping produce of the djacent farm and receiving supplies for it. The steam packet of he Virginia Navigation Co. and that of the Norfolk & Petersburg 'ransportation Co. touch at the wharf daily. The wharf is also sed by 5 to 10 barges and the same number of sailing vessels during year. Freight is moved by hand. The wharf is efficient for equirements.

It is understood that all vessels are allowed to use the wharf on ame terms.

(*b*) The wharf is 15 miles from the railroad and has no connection ith it.

(*c*) A private road leads to the wharf.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

WILCOX (PUBLIC).

(*a*) A light pile wharf on left bank of river, about 43 miles below Richmond. The wharf frontage is about 75 feet in water about 11 feet deep. The wharf has a small warehouse.

The commerce at the wharf is small. Shipments comprise farm and forest products and receipts of general merchandise and farm supplies. The steam packet of the Virginia Navigation Co. and that of the Norfolk & Petersburg Transportation Co. land at the wharf daily. About 10 barges and 20 sailing vessels use the wharf in a year. Freight is moved by hand. The wharf is efficient for requirements.

The wharf is open to all water carriers without charge. Wharfage charged on freight.

(*b*) The wharf is remote from and has no connection with railroads.

(*c*) An ordinary country road connects with the wharf.

WEYANOKE (PUBLIC).

(*a*) A light pile wharf on left bank of river, about 45 miles below Richmond. Length of wharf front, about 60 feet, in water about 12 feet deep. The wharf has no warehouse.

The steamer of the Virginia Navigation Co. and that of the Norfolk & Petersburg Transportation Co. touch at the wharf daily. A number of sailing vessels are loaded at the wharf with forest products, which are loaded by hand. The wharf is fairly efficient.

All vessels are allowed to land at the wharf without charge. Wharfage is charged for freight and passengers.

(*b*) The wharf is remote from and has no connection with railroads.

(*c*) An ordinary country road leads to it.

WEYANOKE FARM (PRIVATE).

(*a*) A light pile wharf on left bank of river, immediately below Weyanoke Wharf. Length of wharf front is about 50 feet, in water about 12 feet deep. The wharf has a good warehouse.

The steam packet of the Virginia Navigation Co. and that of the Norfolk & Petersburg Transportation Co. touch at the wharf daily. From 5 to 10 barges and the same number of sailing vessels use the wharf in a year. The traffic at the wharf is small, and comprises farm products and supplies for Weyanoke farm. Freight is moved by hand. The wharf is efficient for requirements.

The wharf is a private one, but all vessels are allowed to use it without charge.

(*b*) The wharf has no railroad connections.

(*c*) An ordinary country road connects with it.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

STANLEY (PRIVATE).

(*a*) A substantial pile wharf on right bank, about 49 miles below Richmond. The wharf front is about 60 feet long, in a depth of water of about 12 feet. It has a small warehouse. The traffic at the wharf is small, and consists principally of farm products and supplies, which are moved by hand. The wharf is used on week days by the daily packet of the Virginia Navigation Co. and the Norfolk & Petersburg Transportation Co. The wharf is efficient for the purpose intended.

(*b*) The wharf has no connection with railroads, the nearest being about 7 miles distant.

(*c*) It has a good country road leading to it.

UPPER BRANDON (PRIVATE).

(*a*) A substantial pile wharf on right bank of river, about 50 miles below Richmond. The wharf has a frontage of about 80 feet, water about 14 feet deep. It has a small warehouse. The daily packet of the Virginia Navigation Co. and that of the Norfolk & Petersburg Transportation Co. land at the wharf on signal. The receipts and shipments consist of supplies for and products of the adjacent farm. Freight is loaded and unloaded by hand. The wharf is efficient for requirements. It is open only to water carriers transacting business with the farm.

(*b*) The wharf is remote from the railroad, with which it has no connection.

(*c*) It is connected with the adjacent farm by a private road.

STURGEON POINT—UPPER WHARF (PRIVATE).

(*a*) A substantial pile wharf, about 51½ miles below Richmond, on the bank of river. Its frontage is about 300 feet, in water from 10 to 15 feet deep. It has no warehouse.

The wharf belongs to the James River Brick Co. It is used principally in shipping brick made near it and for receiving coal for the brick kilns. It is also occasionally used by the steam packet of the Norfolk & Petersburg Transportation Co. to deliver supplies and general merchandise. All freight is moved by hand. The wharf is considered efficient for the purpose for which it is intended. It is used only by vessels owned by or having business with the brick company.

(*b*) The wharf is remote from railroads.

(*c*) It has no public highway connecting with it.

STURGEON POINT—LOWER WHARF (PUBLIC).

(*a*) A pile wharf on left bank of river about 51½ miles below Richmond. It has a frontage of about 55 feet in water about 20 feet deep. It has no warehouse.

General location and description.
Physical connection between water terminals and railroads.
Connection with highways.

The wharf is used by the daily steam packet of the Virginia Navigation Co. and that of the Norfolk & Petersburg Transportation Co. also by about 6 barges and 6 sailing vessels during a year. There are considerable shipments of forest products from the wharf and small receipts of merchandise, all being moved by hand. The wharf is efficient for requirements.

Wharfage is charged on all freight landed at or shipped from the wharf. It is open to all on equal terms.

(*b*) The railroad is several miles distant, and has no connection with the wharf.

(*c*) There is an ordinary country road to the wharf, through private property.

OLDFIELD (PUBLIC).

(*a*) A pile wharf on left bank of river, about 53 miles below Richmond. The wharf has a frontage of about 52 feet, in water 16½ to 18½ feet deep. It has an open warehouse.

The Virginia Navigation Co.'s packet lands at the wharf daily and other steamers on signal. About 2 to 3 barges and 4 or 5 sailing vessels use the wharf in a year. The volume of freight handled at the wharf is small, comprising principally forest products and general merchandise, and is moved by hand. The wharf is efficient for requirements.

All vessels are allowed to use the wharf on same terms and conditions. Wharfage of 10 cents per passenger and 30 cents per ton for freight is charged.

(*b*) The wharf is remote from railroads.

(*c*) An ordinary country road extends to the wharf.

TREES POINT (PRIVATE).

(*a*) A light pile wharf on left bank of river, about 54 miles below Richmond. Its frontage is about 40 feet, in water about 14 feet deep. The wharf is an appurtenance of a sawmill. It has no warehouse. Considerable lumber is shipped from the wharf and small quantities of supplies received. A steamer of the Norfolk & Petersburg Transportation Co. touches at the wharf about three times per month. During a year about 4 barges and 25 sailing vessels are loaded at the wharf with lumber. All freight is moved by hand. The wharf is adequate for requirements.

It is understood that the wharf is used only by vessels chartered for carrying the sawmill's products and for steamers having freight for the wharf owners.

(*b*) The wharf is remote from and has no connection with railroad.

(*c*) There is no public road to the wharf.

RICHIE (PUBLIC).

(*a*) A light pile wharf on right bank of river, about 54 miles below Richmond. The wharf frontage is about 90 feet, with depths from about 12 to 14 feet along it. The wharf has a warehouse.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

The wharf belongs to the adjacent farm. Steamers of the Virginia Navigation Co. and the Norfolk & Petersburg Transportation Co. land at the wharf from three to five times per week. It is also used during a year by from four to six barges and six to eight sailing vessels. Freight is moved by hand.

The wharf is efficient for requirements. It is free to all water carriers.

(*b*) It is remote from railroads.

(*c*) It has a private road leading to it.

LOWER BRANDON (PRIVATE).

(*a*) A light pile wharf on the right bank of the river, about 55 miles below Richmond. The wharf front is about 60 feet long, in depth of water of about 8 feet. It has no warehouse.

The steam packets of the Virginia Navigation Co. and the Norfolk & Petersburg Transportation Co. touch at the wharf on week days. Small quantities of farm products and supplies, respectively, are shipped from and received at the wharf. Freight is moved by hand. The wharf is efficient for requirements.

The wharf is for private use. There are no regular terms for its use by vessels carrying freight for others than the wharf owners.

(*b*) The wharf has no connection with railroads, the nearest being several miles distant.

(*c*) A good country road connects with the wharf.

JOHN HAY WHARF (PRIVATE).

(*a*) A pile wharf on right bank of river about 56½ miles below Richmond. The wharf has a frontage of about 80 feet in water about 9 feet deep. It has a warehouse.

The volume of freight handled at the wharf is small. It consists of supplies for industrial school. It is moved by hand. The steamer packet of the Virginia Navigation Co. lands almost daily at the wharf. The wharf is efficient for the purpose intended. It is not open to vessels except on special terms, made when occasion requires.

(*b*) There is no physical connection between the wharf and railroad, which latter is about a mile distant.

(*c*) A country road extends to the wharf.

RENWOOD (PUBLIC).

(*a*) A light pile wharf on left bank of river, about 57½ miles below Richmond. The wharf has a frontage of about 50 feet in water about [illegible] feet deep. It has no warehouse.

The traffic at the wharf is small, and comprises farm and forest products and supplies. All freight at the wharf is loaded and unloaded by hand. The Virginia Navigation Co.'s steamer touches at the wharf about twice a week and the steamer of the Norfolk & Petersburg Transportation Co. about once a week. Three or four

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

sailing vessels also use the wharf during a year. The wharf has adequate efficiency for requirements.

The wharf is reported as open to use of all vessels, and wharfage rates are uniform.

(*b*) The wharf is remote from and not connected with any railway.

(*c*) There is a country road to the wharf.

SANDY POINT (PUBLIC).

(*a*) A light pile wharf on left bank of river, about 57¾ miles below Richmond. Its frontage is about 60 feet, in water about 15 feet deep. The wharf has a small warehouse. The amount of freight is sma and vessels are loaded and unloaded by hand.

The wharf is used by the daily steam packet of the Virginia Na gation Co. and that of the Norfolk & Petersburg Transportation C on week days. Excursion steamers also use the wharf. The wharf efficiency is adequate.

All vessels land free at the wharf. Uniform rates of wharfag however, are charged for all freight and passengers.

(*b*) The wharf is remote from railroads.

(*c*) There is a country road leading to it.

CLAREMONT (PUBLIC).

(*a*) A group of four substantial pile wharves on right bank river, about 58 miles below Richmond. The four wharves are close proximity to each other and have an aggregate frontage about 270 feet. The uppermost or first wharf has a frontage about 75 feet in water about 19 feet deep; the second has a fronta of 81 feet in water 14 to 18 feet deep; the third, a frontage of 75 f in water 14 to 15 feet deep; and the fourth or lowermost, a fronta of 40 feet in water 7 feet deep. The uppermost wharf has a la warehouse.

The wharves belong to and support the tracks of the South Railway. Farm products and considerable forest products, pri pally lumber, are shipped and considerable merchandise receiv The wharves are used daily by the steam packet of the Virginia Na gation Co. and that of the Norfolk & Petersburg Transportation C The steamers of the Old Dominion Steamship Co. also land at wharf on signal. During a year about 60 barges and 120 sailing v sels are loaded with forest products at the wharf. Lumber is tra ferred directly from cars on the wharves to vessels alongside wharves by tackle on the vessels and by hand. Merchandise moved by hand trucks and skids. The wharf is efficient for quirements.

All vessels are allowed to use the wharf on same terms and co tions, viz, 50 cents per day and 25 cents per night.

(*b*) As stated, these wharves have rail connection. There are contracts for prorating with any vessels.

(*c*) There is an ordinary country road leading to the wharf.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

JAMESTOWN ISLAND (PRIVATE).

(*a*) A pile wharf on left bank of river, about 68 miles below Richmond. It has a frontage of about 130 feet in water about 18 feet deep. The wharf has a warehouse.

The freight traffic at the wharf is small, consisting of farm products and supplies. The passenger traffic is large, consisting principally of excursionists. Steamers of the Virginia Navigation Co. and the Norfolk & Petersburg Transportation Co. touch at the wharf on week days. All freight is moved by hand.

The wharf is old and in bad condition.

Steamer passengers pay 25 cents for passing over the wharf and special lower charges are made for excursionists. Wharfage is also charged for freight.

(*b*) There is no railway connection with the wharf.

(*c*) There is, however, a public road to it.

SCOTLAND (PUBLIC).

(*a*) A substantial pile wharf on the right bank of the river, about 8½ miles below Richmond. It has a frontage of 70 feet in water about 11 feet deep and can accommodate vessels on each side for a length of about 400 feet. The wharf has a large warehouse.

The wharf is used daily by the steam packet of the Virginia Navigation Co. and that of the Norfolk & Petersburg Transportation Co. It is also used by about 125 barges and 100 sailing vessels during a year, which receive lumber and other forest products delivered to the wharf by the Surry, Sussex & Southampton Railway. Lumber is transferred from the railway cars on the wharf to vessels alongside the wharf by hand and by means of tackle on the vessels. The crews of vessels are used in handling the lumber. Merchandise is moved by hand. The wharf is efficient for requirements.

The wharf is used by all sailing vessels and barges free of charge. Steamers are charged a daily fee.

(*b*) The wharf belongs to the Surry, Sussex & Southampton Railway, a narrow-gauge road connecting with the Norfolk & Western. The track of the Surry, Sussex & Southampton Railway extends the entire length of the wharf. There is no contract for interchange of freight between vessels and the railroad, and there is no prorating.

(*c*) There is a country road leading to the wharf.

COBHAM (PUBLIC).

(*a*) A good pile wharf on the right bank of river, about 68¾ miles below Richmond. The wharf front is about 65 feet long in about 12 feet of water. The wharf has a warehouse. Small amounts of farm produce and general merchandise are shipped and received, all of which are loaded and unloaded by hand. The steamer of the Virginia Navigation Co. and that of the Norfolk & Petersburg Transportation Co. touch at the wharf daily, and a few small sail boats

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General location and description.
Physical connection between water terminals and railroads.
Connection with highways.

during a year. The wharf is efficient for requirements. The wharf is free to all vessels.

(*b*) It is remote from and has no connection with railroads.

(*c*) It connects with an ordinary country road.

HOMEWOOD (PRIVATE).

(*a*) A light pile wharf on right bank, about 75 miles below Richmond. The wharf has a frontage of about 60 feet in depths of water of about 10 to 12 feet. It has a warehouse.

The daily steam packet of the Virginia Navigation Co. and that of the Norfolk & Petersburg Transportation Co. touch at the wharf. The traffic is small. The wharf is used only for receiving small quantities of supplies and shipping products of the adjacent farm, all of which are moved by hand. The wharf is efficient for the purpose intended.

The wharf is not open to other vessels than those above mentioned except by previous arrangement.

(*b*) There is no connection between the wharf and railroad, which latter is upward of 10 miles distant.

(*c*) A good highway connects with the wharf.

FERGUSSON'S WHARF (PUBLIC).

(*a*) A light pile wharf, on right bank, about 86 miles below Richmond. It has a frontage of 50 feet, in water about 11 feet deep. It has a warehouse.

The steamer of the Virginia Navigation Co. and that of the Norfolk & Petersburg Transportation Co. land at the wharf daily. Two or three sailing vessels use the wharf in a year.

The commerce of the wharf is small, comprising general merchandise, fish, and farm and forest products. Freight is loaded and unloaded by hand, and carried ashore on a tram push car. The wharf is adequate for requirements.

The wharf is reported to be open to all vessels without charge. Wharfage is charged for passengers and freight.

(*b*) The wharf has no railroad connections.

(*c*) The wharf's tramway connects with a public highway.

(*d*) There is no apparent need for additional wharf facilities.

PAGAN RIVER, VA.

(*a*) The navigable portion of Pagan River, Va., extends from mouth in the James River, Va., up to the town of Smithfield, a tance of 9 miles, the bridge at Smithfield being the head of navi tion. At Smithfield there are the following wharves: Two pri peanut wharves belonging to P. D. Gwaltney, the Old Domin Steamship Co.'s wharf, used by the steamboats of that line, open to the public upon the payment of wharfage charges. T

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

follow in order a few old and more or less dilapidated wharves, at which small boats sometimes tie up. Farther down there is a private wharf belonging to the Standard Oil Co., and next, and last, an ice-house wharf (private). At none of these wharves are there any mechanical appliances for freight handling.

Four miles below Smithfield, at Battery Park, there is a public wharf containing a small warehouse. This also has no mechanical appliances for handling freight.

All the wharves mentioned as public are open to all boats upon payment of wharfage charges, though business is in practice almost entirely restricted to the Old Dominion steamboats and small sail or gasoline boats belonging to or leased by the farmers and used to help out the steamboats at times of congestion of traffic. The wharfage charges are usually a few cents per package landed or loaded, depending upon the character and size of package. In practice this wharfage is charged as an item on the freight bill and collected with the freight charge by the transportation company, the amount of wharfage collected being periodically paid to the wharf owner.

(*b*) No railroads touch the shores of the Pagan River, and, consequently, all traffic is handled by water. A large part of this traffic consists of truck carried by the steamers or small boats to Norfolk, and there transferred to other boats and shipped to the northern markets. All of this freight is handled on through bills of lading, with prorated distribution of the freight charges.

(*c*) The wharves at Smithfield are connected with the street system of the town, which are maintained in fairly good condition. There is also a fairly good road leading to the wharf at Battery Park.

(*d*) The existing wharves seem to be sufficient for the business.

APPOMATTOX RIVER, VA.

(*a*) The navigable portion of the Appomattox River extends from its mouth in the James River, Va., up to the harbor of the city of Petersburg, a distance of 11 miles. There are no wharves or terminals along this river other than at Petersburg, Va. The wharves at Petersburg are as follows: Atlantic Coast Line Railroad (public wharf), 240 feet long; J. W. Phillips, Phillips Line (private wharf), [illegible] feet long; Pocomoke Guano Co. (private wharf), 95 feet long; Atlantic Coast Line Railroad (public wharf), 140 feet long; Virginia-Carolina Chemical Co. (private wharf), 90 feet long; city of Petersburg (public wharf), 910 feet long; Homer Atkinson (public wharf), 50 feet long; Seward Trunk & Bag Co. (public wharf), 250 feet long; James Branch (private wharf), 90 feet long; Badger wharf (private), 100 feet long; Nichols Coal Co. (private wharf), [illegible] feet long; Bartlett Roper (private wharf), 315 feet long; John G. [illegible]nn (private wharf), where there are several small lumber piers. [illegible] these wharves are maintained in fairly good condition, but mechanical appliances for handling freight are absent. The freight unloaded at the wharves above mentioned is handled by a number of

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(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways
(d) Necessity for water terminals.

private boats and by two regular lines of passenger and freight steamers, one running to Richmond, the other to Newport News and Norfolk, Va. These wharves, on the whole, are maintained in a generally good condition and are sufficient for the freight now passing over them. Those marked "public" are for general use by any boats upon payment of small wharfage charges. The other wharves are for private use.

(*b*) There are physical connections between several of the wharves above mentioned and the Norfolk & Western, Seaboard Air Line, and Atlantic Coast Line Railroads, and there is a mutual contract for interchange of freight by prorating between the steamboat lines and railways for long-distance traffic.

(*c*) Improved and adequate highways, which are really the streets of the city of Petersburg, extend to the wharves mentioned above.

(*d*) There is no apparent need for additional wharf facilities at the present time.

HARBOR AT CAPE CHARLES CITY, VA.

(*a*) This harbor is an artificial, rectangular dredged harbor, having a dredged entrance connecting with Chesapeake Bay. The area covered by the harbor and the shores around it are the property of the New York, Philadelphia & Norfolk Railroad Co. Along the north side of the harbor there is a concrete sheet-pile wharf, which is used by the railroad company's passenger steamers for landing passengers, baggage, and freight. It is also in use by various small vessels bringing fish, oysters, and truck. Nearly all of the cargo landed at this wharf by these small boats is for shipment by the railroad, but it is understood that small boats are permitted, without charge, to make use of this wharf for the landing or loading of freight consigned to the merchants and others in the town, subject to the condition, however, that all of the merchandise landed must be removed before the boat leaves the dock.

At the east end of the harbor there are two large transfer slips which are used by the large car floats in loading and discharging freight cars.

At the east end of the south side of the harbor there is a small coal wharf belonging to the railroad company, the remainder of the side of the harbor being taken up by an old bulkhead. Boats are allowed to tie up here without charge, and to load and unload their cargo, but everything loaded or unloaded at this point has to be hauled to or from the town, over a bad road, a distance of approximately 1 mile, and up a steep grade, over the railroad tracks.

(*b*) Rail connection exists between the terminals mentioned above and the main line of the New York, Philadelphia & Norfolk Railroad Co., extending northward to Wilmington, Del. The railroad company's passenger boats ply between this terminal and docks at Old Point Comfort (Fort Monroe), Va., and at Norfolk Harbor. The car transfers carry freight cars from the terminal at Cape Charles City to two points in the harbor at Norfolk, Va., at one of which c

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

nection is made with a belt line railroad, extending partially around Norfolk Harbor, and connecting with the railroad lines to the West and Southwest. It is understood that the freight transferred by this railroad company to the railroad lines extending to the South and West is upon through bills of lading.

Except for the transfer of loaded freight cars from rail to transfer barges (to be transferred back to rail at the other end), and the small quantities of fish, truck, and similar products transferred from small boats to the railroad, there is no interchange of traffic between water and rail at Cape Charles City, and consequently no prorating of freight charges.

(*c*) Fairly good roads connect the passenger docks on the northern side of Cape Charles City Harbor with the streets of Cape Charles City, but the road from the town to the quasi public dock at the south side of the harbor is exceedingly poor.

(*d*) There is at present no apparent need for any additional water terminals in this vicinity.

ONANCOCK RIVER, VA.

(*a*) The Onancock River is navigable to the town of Onancock, 5 miles above its mouth. At this town there were formerly several wharves, all of which are now in bad condition except the small wharf where the Baltimore steamer lands. A mile below Onancock is Finney's Wharf, and 1½ miles lower down is Mears's Wharf, both being small. The three wharves mentioned are the only wharves on the river now available for boats, and they are used by the Baltimore steamers and by a number of small boats carrying oysters, crabs, and truck. These are public wharves and are available for any boats upon the payment of small wharfage charges.

(*b*) There are no railroads running near this river and, consequently, there are no railroad connections with any of the wharves.

(*c*) The roads leading to these wharves are generally in poor condition.

(*d*) The existing wharves seem to be sufficient for the business of the community.

WATERWAY TO SOUNDS OF NORTH CAROLINA.

(*a*) This waterway extends from Norfolk Harbor, Va., via the Southern Branch of the Elizabeth River, through Deep Creek, a tributary of the Southern Branch, the Dismal Swamp Canal, an artificial channel called "Turners Cut," and the Pasquotank River to Albemarle Sound. The Dismal Swamp Canal is owned, operated, and maintained by a private corporation which charges toll for the passage of vessels through the canal. Both approaches to the canal are maintained by the United States, dredging having been done from time to time in Deep Creek at the north end of the canal, and at

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

the south end. Turners Cut was made by the United States. This cut and the Pasquotank River have been periodically cleared of snags. The northern end of this waterway is at Norfolk Harbor, the terminals of which are described in the report on the terminal facilities for that harbor. From the point where this waterway leaves Norfolk Harbor to the Deep Creek locks of the canal there are no wharves.

The only point along the canal proper where there is a wharf is at Wallaceton, near the middle of the canal. Here there is a private wharf and warehouse belonging to a lumber company.

At a few other points along the canal small private warehouses have been constructed and boats occasionally stop to pick up truck and unload small quantities of supplies.

Along the Pasquotank River, between the south end of the canal and Elizabeth City, there are three private landings, none of which have railroad or other facilities. Sawyers, left bank, 12 miles above Elizabeth City, has a small wharf with house on it and a tramway leading to high land 300 yards back. Possum Quarter, right bank, 10½ miles above Elizabeth City, has a small wharf with house on it. Shipyard Landing, left bank, 8 miles above Elizabeth City, has a small wharf (this shipyard no longer exists). These wharves are used by small steamers and small gasoline boats for the loading of truck, etc., and unloading of small quantities of supplies.

The route of this waterway is crossed at one point on the Pasquotank River, 3 miles above Elizabeth City, by the main line of the Norfolk Southern Railroad, but trains do not stop here and there are no facilities for the interchange of rail and water traffic.

Elizabeth City is really the southern terminal of this waterway; at least no work has been done below Elizabeth City.

The docks and warehouses on the Pasquotank River, at Elizabeth City, N. C., are as follows:

Foreman-Blades Lumber Co., 1 wharf and 2 sheds.
Norfolk Southern Railroad Co., 2 wharves and 2 warehouses.
W. J. Woodley, 1 wharf and 1 warehouse.
Crystal Ice & Coal Co., 1 wharf.
E. F. Aydlett, 2 wharves and 2 warehouses.
Fred Davis, 1 coal dock and 1 warehouse.
J. B. Flora, 2 wharves.
C. H. Robinson, 1 wharf.
The Texas Co., 1 wharf and 1 warehouse.
W. H. Weatherly Co., 1 wharf and 1 warehouse.
Jannette Bros., 1 wharf and 1 warehouse.
Griffin's mill, 1 wharf.

On the east bank of the river, opposite Elizabeth City, there are two wharves, one belonging to the Texas Co., and the other to the Crown Oil & Wax Co., which has one wharf and a warehouse.

The wharves are all of either the bulkhead type or open-pile work. The warehouses are, in some cases, brick structures, and, in others cheap wooden buildings. No loading appliances are used.

All of the above-named wharves were constructed and are maintained for the private business of the owners. It is not the custom of the port to charge wharfage on boats landing occasionally at private docks, and were wharfage to be charged the privilege of landing would become vested in the public at uniform rates.

The city owns the ends of the streets which extend to the river and they have been bulkheaded, and small boats frequently use them as landings; no charges are made.

There are three marine railways at Elizabeth City, one of which is capable of handling boats of about 1,000 gross tons.

Below Elizabeth City there are two wharves on the east bank of the river, with a warehouse at each, one at Shiloh, 7 miles south of Elizabeth City, and another at Old Trap, 10 miles south of Elizabeth City.

(*b*) The Norfolk Southern Railroad has physical connection with its wharves and warehouses at Elizabeth City, and no wharfage charge is made on boats using them. This road prorates freight rates with boats plying from Elizabeth City to North River and intermediate points, to Roanoke Island, to Fairfield, N. C., and Alligator River points, and to Newbegun Creek.

No other wharves along the entire waterway, other than the ones mentioned, have physical connections with a railroad.

(*c*) Along the old towpath of the canal there is a road that touches all wharves. The wharves at Elizabeth City are all connected with the street system of that city. All the other wharves on the Pasquotank River are reached by country roads of the usual character.

(*d*) There is no apparent need for additional terminals in this locality.

WATERWAY FROM NORFOLK HARBOR, VA., TO ALBEMARLE SOUND, N. C.

(*a*) This inland water route extends from Norfolk Harbor, Va., to Albemarle Sound, N. C., via the Southern Branch of the Elizabeth River, Va., the Chesapeake & Albemarle Canal (Virginia cut), North Landing River, Currituck Sound, Coanjock Bay, the North Carolina cut of the canal, and North River. All of these are natural waterways, except the Virginia and North Carolina cuts of the canal. This canal is now owned by a private corporation, but by an act approved July 25, 1912, Congress made an appropriation for the purchase by the United States of the rights of the canal company to their canal and other property, and also adopted a project and made an appropriation for beginning the improvement of this waterway.

The northern end of this waterway is in Norfolk Harbor, and all the terminals there are reported upon in the report on the terminals of Norfolk Harbor.

The other terminals along this route are as follows: On the Virginia cut of the Chesapeake & Albemarle Canal, Great Bridge, 0.4 mile below the lock at head of the canal, 1 wharf and 1 warehouse; Mount Pleasant, 3.4 miles below the lock, 1 wharf and 1 warehouse; North Landing, 8 miles below the lock, 1 wharf and 1 warehouse. On the upper part of North Landing River, wharves and warehouses formerly existed at West Landing, Etheridge, Pungo, and Bell Acre, but since the construction of the Currituck

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

Branch of the Norfolk Southern Railroad, practically no business has been done at these landings, and the wharves and warehouses have deteriorated, and in some cases have been totally destroyed. None of them are in serviceable condition at present. The only wharf in use at present on lower North Landing River is at Munden, Va., the terminus of the Currituck Branch of the Norfolk Southern Railroad, 22 miles below the lock. A water terminal consisting of a warehouse and wharf with track is maintained here by the railroad company.

On Currituck Sound but one wharf is now used, that at Knotts Island, 30 miles below the lock, where a wharf and warehouse are located. The wharf and warehouse, which formerly existed at Currituck Court House, has been abandoned and is no longer serviceable.

There are two landings with wharves and warehouses at each on the Carolina cut of the Chesapeake & Albemarle Canal; one at the Farmers Manufacturing Co.'s mill, 36.5 miles below the lock; and at Coanjock, 37 miles below the lock.

On North River there is a landing with warehouse and wharf at Jarvisburg, N. C., 50 miles below the lock.

All of the above wharves and warehouses are privately owned. The wharves are of the bulkhead and open-pile work type, and the warehouses are simple wooden structures.

As a rule, no wharfage charges are made, and the same privileges are extended to all on equal terms.

(*b*) The Norfolk Southern Railroad crosses the Virginia cut of the canal 2.3 miles below the lock, but no means of transferring freight is located here. Physical connection between rail and water exists at Munden, Va., the only point on the route where this facility is provided. No steamboat line connects with the railroad at this point, but a great number of fishermen and hunters bring fish and game to this wharf in small boats for rail shipment to distant points and receive supplies which have been shipped to them from points on the railroads.

There appear to be no contracts for through freight rates at this point.

(*c*) Ordinary country roads reach all of the wharves on the route.

(*d*) There is no apparent need for more terminals than now exists.

PERQUIMANS RIVER, N. C.

(*a*) With the exception of a very small amount of fishing business this river is used at the present time exclusively for timber transportation. No wharves or warehouses exist, except two or three crude landing platforms for transfer of fish and supplies.

Hertford, N. C., is the only town on the river, but no wharves or warehouses for the general handling of freight are located here. A lumber company operating at this point has a simple pile landing for its tug boats.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*b*) The Norfolk Southern Railroad crosses the river near Hertford, N. C., but no facilities are provided for the transfer of freight between rail and water.

(*c*) As there are no water terminals, no highways lead to the river, except where the public roads touch the stream.

(*d*) There is no apparent need for terminals on this river at the present time.

EDENTON BAY, N. C.

(*a*) Prior to the opening, in 1911, of the Norfolk Southern Railroad bridge across Albemarle Sound, a short distance east of Edenton, all passengers and freight carried over this line for points north and south of Edenton were transferred at Edenton by a railroad transfer steamer across Albemarle Sound. Extensive wharves, sheds, and yards were built at the west end of the town to facilitate this business, but since the bridge has been put into operation these have been neglected and are now deteriorating. The railroad company has built new water terminals, consisting of a bulkhead and open pile-work wharf and a warehouse, at the eastern end of the town near their tracks to the bridge.

In addition to the Norfolk Southern's wharves there exist private wharves and warehouses belonging to the Albemarle Steam Navigation Co., the Edenton Ice & Coal Co., and a number of small docks where motor boats unload fish. The end of the main street of the town is bulkheaded and is used as a landing. All of the landings are privately owned, except the street ends, but it is not the custom of the port to charge wharfage. Equal privileges are extended to all. No freight-handling appliances are used.

(*b*) Physical connection exists between the Norfolk Southern railroad and the company's wharves, where freight is transferred for transshipment. Contracts for the interchange of freight exists between the railroad and the Albemarle Steam Navigation Co., which operates upon the Chowan, Meherrin, Blackwater, and Bennetts rivers and a smaller line operating a freight motor boat between Edenton and points on the south side of Albemarle Sound. Freight rates are prorated on traffic carried by rail and water.

(*c*) The streets of Edenton are kept in fair condition and connected with the wharves.

(*d*) There is no apparent need for additional terminal facilities.

BLACKWATER RIVER, VA.

(*a*) The principal point on the Blackwater River is Franklin, Va., the present head of navigation, where a warehouse and wharf, with railroad tracks, are located. The wharf is a pile structure with bulkhead in the rear, and the warehouse is an ordinary wooden building.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

Smaller wharves and warehouses exist at South Quay, Cobbs Wharf, and Milk Landing, all of which are privately owned, but they are open to use by all carriers on the same terms.

(*b*) Physical connection between water and rail carriers exists only at Franklin, Va., where the Seaboard Air Line Railway has a track on the wharf. Contracts for interchange of traffic, by prorating, are in force between the Albemarle Steam Navigation Co. and the Seaboard Air Line Railway Co.

(*c*) The streets of Franklin connect with the wharf at that point, and at the other points ordinary country roads extend to the landings.

(*d*) There is no apparent need for more terminals than now exists.

MEHERRIN RIVER, N. C.

(*a*) The navigable portion of Meherrin River extends from its mouth in the Chowan River to the town of Murfreesboro, N. C., 1[illegible] miles above its mouth. At Murfreesboro there are two wharves and two warehouses. One wharf and one warehouse belong to the Albemarle Steam Navigation Co., and are used by the boats of that line. The other wharf and warehouse are used by the smaller boats which call at Murfreesboro, and, while privately owned, their use is extended to all on equal terms. Besides the wharves and warehouses at Murfreesboro, there are privately owned wharves and warehouses at Como, 8¼ miles above the mouth; at Mapleton, 8 miles above the mouth; and at Sears, 5 miles above the mouth. All of the above wharves are simple pile structures, bulkheaded in the rear, and the warehouses are roughly constructed wooden buildings. Their use is extended to all on equal terms.

(*b*) No railroads touch the navigable portion of the Meherrin River, and there are therefore no physical connections to any wharves on this stream.

(*c*) Ordinary country roads extend to all the landings.

(*d*) There is no apparent need for a greater number of terminals than now exists.

ROANOKE RIVER, N. C.

(*a*) The navigable portion of the Roanoke River extends from its mouth at the extreme western end of Albemarle Sound to the town of Weldon, N. C., 129 miles above its mouth. The principal landing on the river is Plymouth, N. C., 7 miles above the mouth, where the Norfolk Southern Railroad has a wharf and warehouse. A public wharf used on equal terms by all boats is also located here. The following table gives a list of warehouses and wharves on the river and the distance of same above the mouth of the river:

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

Locality.	Distance above mouth.	Warehouses.	Wharves.
	Miles.		
Plymouth	7	2	2
Jamesville	18	1	.....
Moorings	22	1	.....
Cedar Landing	28	1	.....
Williamston	37	1	1
Spillers Ferry	43	1	.....
Quitsney	47	1	.....
Coniot	49	1	.....
Poplar Point	55	1	.....
Hamilton	62	1	1
Ventosa	76	1	.....
Jones Landing	78	1	.....
Hills Ferry	79	1	.....
Tompsons Landing	82	1	.....
Norfleets Landing	95	1	.....
Smith Landing	100	1	.....
Edwards Ferry	103	1	.....
Jacobs Landing	105	1	.....
Grants Landing	110	1	.....
Caledonia Farm	114	1	.....
Bull Hill	116	1	.....
Halifax	119	1	.....
Weldon	129	.....	.....

The wharves on this stream are either of the open-pile work or bulkhead type, but at some landings no wharf exists on account of the great fluctuation in water level. A warehouse is provided at all of the above places, and the use of same is extended to all carriers on equal terms. No freight-handling appliances are used, and the structures in use fully answer the needs of moderate traffic on the Roanoke River.

(*b*) Direct physical connection between railroads and water carriers exists only at Plymouth, where the Norfolk Southern Railroad's tracks extend to the company's wharf. The Atlantic Coast Line also enters Plymouth and has indirect rail connection with the Norfolk Southern's water terminals.

The Atlantic Coast Line runs through Jamesville, 18 miles above the mouth, and Williamston, 37 miles above the mouth, and crosses the river near Norfleet, N. C., 95 miles above the mouth. A short distance above the head of navigation, near Weldon, the river is crossed by both the Atlantic Coast Line and Seaboard Air Line Railroads. However, at none of these points except Plymouth is there any real connection between the railroads and the wharves, and no freight is transferred between rail and water.

At Plymouth freight is interchanged between the Norfolk Southern Railroad and two boats, which prorate rates on freight carried partly by water and partly by rail. One of these boats serves points above Plymouth on the Roanoke River, and the other points on the Cashie River, a tributary on the north side of the Roanoke River near its mouth.

(*c*) Ordinary country roads run to all landings. They are normally good in dry weather, but after wet weather are very bad.

(*d*) There is no apparent need for additional terminals in this locality.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

EPORT OF MAJ. H. W. STICKLE, CORPS OF ENGINEERS, IN CHARGE OF THE WILMINGTON, N. C., DISTRICT.

[The letters (*a*), (*b*), (*c*), and (*d*) indicate subheadings as shown by footnotes.]

SCUPPERNONG RIVER, N. C.

(*a*) The wharves on the portion of this river under improvement y the United States number 26, of which 9 are below Columbia, l at Columbia, 3 near Cross Landing, and 2 at Spruills Bridge.

They are all of timber construction, with pile foundation, and enerally have plank decking. They have a frontage varying from to 286 feet, the total frontage being 1,512 feet. The height of deck-g above water varies from 1 to 14 feet, and the available depth water at the wharves varies from 2 to 12½ feet. Fourteen of these harves are provided with warehouses, their total warehouse floor ea being 10,556 square feet. Three of these wharves are equipped ith 36-inch gauge and one with standard gauge railroad track. one of these wharves is provided with any mechanical equipment load or unload vessels.

The wharves are used principally for boat landings, loading lum-r for shipment, unloading logs, wood landings, and for shipping rm products. The warehouses are used principally for storage of hing supplies, general merchandise, gasoline, and as fish houses.

The wharves and warehouses are generally in poor condition, but e existing terminal and transfer facilities are considered adequate meet the needs of present commerce.

Excepting the terminals pertaining solely to the lumber interests, of the wharves are open to all water carriers free of charge.

(*b*) Only one wharf has physical connection with a railroad—. 14, at Columbia—which has a siding of the Norfolk Southern ilroad.

No mutual contract exists between any of the water carriers operat-g upon the Scuppernong River and any railroad for interchange traffic by prorating as to such long-distance traffic as may be de-ed to be carried partly by rail and partly by water to its destina-n.

(*c*) Improved and adequate highways have been constructed to lf of these water terminals, and ordinary highways exist to all four of the remaining ones.

(*d*) Water terminals are considered adequate.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

SHALLOWBAG BAY, N. C.

(*a*) The wharves number 17. All but one are of timber construction with pile foundations, and all but three have plank decking. They have a frontage varying from 3 to 510 feet, the total frontage being 837 feet. The height of decking above water varies from 1 to 4 feet, and the available depths of water at the wharves vary from 1 to 5 feet. Twelve wharves are provided with warehouses, the total warehouse floor area being 12,405 square feet. None of these wharves, except that pertaining to marine railway No. 2, is provided with mechanical equipment to load or unload vessels.

The wharves are used principally for boat landings and for unloading general merchandise. The warehouses are used principally for storage of general merchandise, fishing supplies, and as fish houses.

The condition of the wharves and warehouses ranges from very poor to good—the general condition being poor—but the existing terminal and transfer facilities are considered adequate to meet the needs of present commerce.

Excepting the terminal pertaining to the marine railway—No. 2—all of the wharves are open to all water carriers free of charge.

(*b*) No wharves have physical connection with a railroad.

No mutual contract exists between any of the water carriers operating at Shallowbag Bay, N. C., and any railroad for interchange of traffic by prorating as to such long-distance traffic as may be deemed to be carried partly by rail and partly by water to its destination.

(*c*) Improved and adequate highways have been constructed to 12 of these water terminals, and 3 are without highways of any description.

(*d*) Water terminals are considered adequate.

FISHING CREEK, N. C.

(*a*) There are no wharves whatever provided on this stream.

The boats of the Tar River Oil Co. collect and distribute freight from two convenient landing places where the bank is sufficiently high for the purpose. The first landing from the mouth is known as Maybees Landing near Hargroves Bridge at about the fourth milepost, and the other is at Sessons Bridge at 8½ mile. At each of these places the above-mentioned company maintains a warehouse for its use.

The landings are used principally for receipt of fertilizers and cottonseed meal and shipment of timber and cotton seed, and the warehouses for storage of fertilizers, cottonseed meal and cotton seed.

The existing terminal and transfer facilities are considered adequate to meet the needs of present commerce.

The landings are open to all water carriers free of charge.

(*b*) No physical connection exists between water terminals and railroads.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

No mutual contract exists between the water carrier operating on Fishing Creek, N. C., and any railroad for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Highways in a fair state of improvement have been constructed to each landing.

(*d*) The existing terminals are considered adequate for the small commerce carried on this stream.

WATERWAY CONNECTING SWAN QUARTER BAY WITH DEEP BAY, N. C.

(*a*) There are no wharves or terminal facilities along the channel connecting these bays, there being no points for receipt or discharge of commodities by the vessels, the channel having been cut its entire length through a marsh.

(*b*) No mutual contract exists between the water carriers operating on the waterway connecting Swan Quarter Bay with Deep Bay, N. C., and any railroad for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*d*) No terminals are needed along the waterway.

PAMLICO AND TAR RIVERS, N. C.

PAMLICO RIVER, FROM THE MOUTH TO INCLUDE WASHINGTON, N. C.

(*a*) The wharves number 61, of which 51 are at Washington. They are nearly all of timber construction with pile foundation and generally have plank decking. They have a frontage varying from 2 to 92 feet; the total frontage being 5,525 feet. The height of decking above the water varies from 1 to 9 feet, and the available depth of water at the wharves varies from 1 to 14 feet. Thirty-one wharves are provided with warehouses of some description; the total warehouse floor area being about 200,000 square feet. Eight wharves are equipped with track to facilitate handling commodities passing across them. Seven wharves are equipped with derricks. Two marine railways have steam engines for drawing vessels out of the water. One fertilizer plant is equipped with modern devices for unloading materials.

The wharves are used principally for boat landings and transferring coal, fish, oysters, mill supplies, groceries, and oil from vessels and for loading vessels with farm and lumber products.

The wharves and warehouses are generally in a fair condition. Of the wharves in Washington 44 are private, 3 belong to the railroads, 1 to the United States Government, and 3 to the city. The water frontage is congested, storehouses and other buildings being built close to the water's edge. The three wharves belonging to the city are inadequate for any extensive use. A large public wharf

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

with storage facilities for general use equipped mechanically for handling freight should be provided by the city of Washington. This wharf should have physical connections with both railroads. Existing terminal and transfer facilities are inadequate to meet satisfactorily the needs of present commerce.

Generally the wharves are free and open to all water carriers. The exceptions are some private wharves and some wharves where steam vessels are not permitted to land. All warehouses, except those of the railroads, are privately owned and used in connection with business conducted by the owners. At Washington the warehouse of the Norfolk Southern Railroad Co., No. 50, has wharfage, storage, and handling tariffs issued and on file with the Interstate Commerce Commission, and these rates are charged to all coastwise or foreign vessels. Local boat lines interchanging business with the company are charged no wharfage and all are on equal terms.

(*b*) Five wharves have physical connection with railroads—the railroad wharves Nos. 7, 2, 3, and 50, in Washington, and Pamlico Fertilizer Works, No. 56, and Roanoke Lumber Co., No. 60, below Washington. Connection with the last wharf is had by means of car floats to Belhaven.

At Washington the Norfolk Southern Railroad Co. interchanges traffic with the J. L. Fountain Co., which operates boats on the Tar River, the rates being on file with the Interstate Commerce Commission.

(*c*) Improved and adequate highways have been constructed to nearly all these water terminals.

(*d*) Except at Washington, the water terminals are considered adequate.

II. TAR RIVER.

(*a*) The wharves on this river between Washington and the mouth of Fishing Creek number 11. They are located as follows:

A timber bulkhead, No. 62;
A timber wharf and warehouse at Grimes Landing, No. 63;
A pile wharf near a sawmill and lumber shed, No. 64;
A pile wharf and a warehouse at Boyds Ferry, No. 65;
A pile wharf and a warehouse, No. 66;
A bulkhead wharf and house at Pactolus, No. 67;
A bulkhead wharf, No. 68;
Three wharves at Greenville, Nos. 69, 70, and 71; and
A wharf and shelter at the Shiloh Oil Mills, No. 72.

There are also numerous natural landing places, at some of which shelter from the weather is provided where freight is received and discharged by owners directly.

The wharves are used as boat landings and to discharge general merchandise and receive produce for shipment.

The wharves and warehouses are generally in fair condition, and adequate terminal facilities are lacking at Greenville and Tarboro. Public wharves for general use, with storage facilities and with physical railroad connections and with improved highways, should be provided at these two places.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

The wharves are all privately owned, but generally no charges are made for their use.

(*a*) No physical connection exists between water carriers and the railroads.

(*b*) No mutual contract exists between any of the water carriers operating upon the Tar River and any railroad for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Highways under varying degrees of improvement lead from all the wharves and landings.

(*d*) The existing terminals are in the main considered adequate for existing commerce, except at Greenville and Tarboro.

BAY RIVER, N. C.

(*a*) The wharves on the portion of this river under improvement by the United States number 18, of which 6 are located at Vandemere, 5 at Stonewall, and 2 at Bayboro. They are all of timber construction with pile foundations, and generally have plank decking. They have a frontage varying from 1½ to 128 feet, the total frontage being about 600 feet. The height of decking above water varies from 1 foot to 8 feet, and the available depth of water at the wharves varies from 1 foot to 8 feet. Eight wharves are provided with warehouses, their total floor area being about 15,000 square feet. Three wharves are equipped with narrow gauge and one with standard gauge railroad track. One wharf, No. 9, is equipped with derrick and engine for handling fertilizers and cotton. One wharf, No. 1, is a timber marine railway equipped with a hand-power capstan for hauling out boats.

The wharves are used principally for boat landings, loading lumber for shipment, wood landings, and for general merchandise. The warehouses are used for freight depots, for fertilizers, oysters, and general merchandise.

The wharves and warehouses are generally in poor condition. If the present facilities should be put into fair condition, they would be adequate for the existing commerce on this stream, except at Bayboro, where a public wharf near the mill dam with storage facilities and with physical connection with the railroad is needed.

With the exception of the marine railway No. 1 and the Washington & Vandemere Railroad wharf No. 6, both in Vandemere, all the wharves may be used free of charge. No. 6 is open to all water carriers on equal terms free, when transacting business with the railroad company.

(*b*) The wharf of the Washington & Vandemere Railroad, at Vandemere, No. 6, and those of the Pamlico Chemical Co., Nos. 9 and 10, at Bayboro, have physical connection with the railroad; the two last wharves mentioned having a siding of the Norfolk Southern Railroad Co. This siding formerly served the mill wharf just above. (See mill in picture Nos. 9 and 10, at left.)

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

At Vandemere a connection is made by the Washington & Vand mere Railroad with steamers of the Isabel Line, and through ra are in effect to and from points on Bay River. In dividing ra the Isabel Line is allowed a specific proportion of the through rate.

(*c*) Ordinary highways without improvement generally exist the water terminals, though some are fairly well improved.

(*d*) Water terminals are considered to be inadequate on account their generally poor condition and the lack of necessary pub facilities at Bayboro.

SOUTH RIVER, N. C.

(*a*) The wharves on the portion of this river under improveme by the United States, i. e., from the mouth to Aurora, number 9, which 5 are located at Aurora. They are all of timber construct with pile foundations, and with plank decking. They have a fro age varying from 1 to 760 feet, the total frontage being about feet. The height of decking above water varies from 3 to 8 feet, a the available depth of water at the wharves varies from 1 to 5 fe Six wharves are provided with warehouses, their total floor area be about 12,000 square feet. One wharf, No. 7, has a connection to warehouse by a standard-gauge track. This is a private wharf us in connection with operations of sawmill, planing mill, barrel fa tory, and gristmill. None of the wharves has any mechanical equ ment for handling freight.

Wharf No. 5 is owned by the Washington & Vandemere Railro and is a transfer dock for the use of that company at Aurora. W the exception of No. 7, the wharves are used principally for b landings for receiving oysters and transfer of general merchan and shipment of potatoes and other farm products.

With the exception of the railroad wharf (No. 5) and wareho shed, which is in good condition, all the wharves and warehouses a in poor or worse condition. Except for their poor condition they a probably sufficient for existing commerce.

With the exception of the railroad wharf (No. 5), all the wharv may be used free of charge. No. 5 is open to all water carriers equal terms, free when transacting business with the company or f tying up temporarily.

(*b*) The Washington & Vandemere Railroad Wharf No. 5 an the J. B. Whitehurst Standard Timber Co. Wharf No. 7 have r road sidings. All the others have not.

There does not exist between any of the water carriers operating the South River, N. C., and any railroad any contract for interchan of traffic by prorating as to such long-distance traffic as may be sired to be carried partly by rail and partly by water to its dest nation.

(*c*) Highways, ordinary or adequately improved, exist to all wharves.

(*d*) Existing terminal and transfer facilities on this stream put in good state of repair, would be deemed sufficient for the of existing commerce.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

CONTENTNIA CREEK, N. C.

(*a*) There is but one wharf on this stream, located at Grifton, 4½ miles above the mouth. It is a narrow structure, along one side of a warehouse, with the outer edge supported on piles driven beyond the high bank. At Hookerton, 21½ miles above the mouth, there are three natural landing places where warehouses have been built on the high banks, and at Snow Hill, thirty-second mile post, there are two similar landings with warehouses. At a number of other points where the topography is favorable freight is received and discharged by owners at natural landings. In times past there has been some rivalry between the boating interests operating on this stream, and only the owners were allowed to use these landings. At present there is only one line running, and a competing line will be required to establish its own terminals.

(*b*) No physical connection exists between the water terminals and a railroad, nor is there any provision for interchange of traffic between water and rail carriers.

(*c*) Highways in a fair state of improvement have been constructed to each landing.

(*d*) The existing terminals are considered adequate for the small commerce carried on this stream.

SMITHS CREEK, N. C.

(*a*) The wharves contiguous to the portion of this stream under improvement by the United States number 16, of which 2 (Nos. 3 and 4) are located in new Oriental Harbor, 3 (Nos. 5 to 7, inclusive) are in the vicinity of Roper Lumber Co.'s mill, 7 (Nos. 8–14) are in the bay beyond, 1 (No. 15) is farther upstream, and 3 (Nos. 16 to 18, inclusive) are in the small bay opposite new Oriental Harbor, and south of the plant of the Defiance Box Co. They are nearly all of timber construction with pile foundations and generally have plank decking. They have a frontage varying from 2½ to 840 feet; the total frontage being about 1,800 feet. The height of decking above water varies from 2 to 6 feet, and the available depths of water at the wharves vary from 1 to 7 feet. Seven wharves are provided with warehouses, their total floor area being about 40,000 square feet. Two wharves are equipped with narrow-gauge track. None of the wharves is equipped with mechanical devices for handling freight, except No. 3, which has a mast and a block-and-tackle arrangement. The wharves are used principally for boat landings, as storage yards, for unloading cotton for ginning, and unloading fish. The wharf of the Norfolk Southern Railroad Co., No. 4, is used for transferring freight directly from cars to boats and the reverse. The warehouses are used for storage of fish, cotton, cotton seed, general merchandise, and lumber.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

The wharves are generally in poor condition and the warehouses in fair condition. They are not adequate to meet the requirements of present commerce. The town of Oriental, under the requirements of a provision in the river and harbor act of June 25, 1910, is required to construct at least one public wharf of adequate facilities, the use of which shall be open to all on equal terms. This wharf has not yet been constructed.

The present wharves are available for use by all water carriers without charge, when not required for the use of their owners.

(*b*) Wharves No. 4 (Norfolk Southern Railroad Co.) and No. 5, 6, 7, and 8 (John L. Roper Lumber Co.) are provided with sidings which have access to the railroad.

There does not exist between any of the water carriers operating on Smiths Creek, N. C., and any railroad any contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Ordinary highways, mostly unimproved, lead from all the terminals excepting No. 2.

(*d*) Water terminals are considered inadequate.

NEUSE AND TRENT RIVERS, N. C.

NEUSE RIVER. I. PORTION AT AND BELOW NEWBERN, N. C.

(*a*) The wharves on this portion of the Neuse River number [illegible] of which 28 are at or near Newbern and 8 at Bridgeton.

They are all of timber construction with pile foundation and generally have plank decking. They have a frontage varying from [illegible] to 828 feet, the total frontage being about 4,100 feet. The height of decking above water varies from 2 to 14 feet, and the available depth of water at the wharves varies from 1 to 17 feet. Seventeen wharves are provided with warehouses of some description, their total floor area being about 130,000 square feet. Fourteen wharves are equipped with steel rail distributing tracks of gauges from 3 to 9.35 feet, depending upon their purposes. Three wharves have engines operating derricks and capstans, two have one or two 100-ton electric motors, one has a spiral conveyor, and one a hand-operated derrick. A majority of the wharves have no mechanical equipment for handling freight.

The smaller wharves are used principally for boat landings, [illegible] landings, in connection with boathouses, for loading farming [illegible] for supplies and general merchandise. The larger ones are generally utilized for large quantities of single items of commerce, as fertilizer, lumber, and cotton.

As a general statement, the wharves and warehouses are in a fair condition. The existing terminal and transfer facilities at Newbern are not adequate for the needs of existing commerce. A public wharf with storage facilities, mechanical device for handling freight, a

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

with physical connection with a railroad should be provided at an early date. There is one city wharf (No. 34), but it has not the capacity nor the facilities required.

With the exceptions of seven wharves (Nos. 23, 24, 25, 26, 30, 31, and 32), boats may tie up without any charge for wharfage when not required by the owners. No. 30 is a marine railway, and Nos. 31 and 32 are private wharves. The Norfolk Southern Railroad Co. has two wharves (Nos. 23 and 24) with storage warehouses. Covering these there are wharfage, storage, and handling tariffs issued and on file with the Interstate Commerce Commission, and these rates are charged to all coastwise or foreign vessels. Local boat lines interchanging business with that railroad company are not charged for wharfage and all are on equal terms. The Atlantic Coast Line Railroad Co. has two wharves (Nos. 25 and 26) and one warehouse, for the use of which all are charged at equal rates for the same service.

(*b*) Besides the 4 railroad wharves there are 16 other wharves in Newbern on the Neuse River provided with railroad sidings.

There does not exist between any of the water carriers operating on this portion of the Neuse River, N. C., and any railroad any mutual contract for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Improved and adequate highways have generally been constructed to the water terminals.

(*d*) A public wharf is needed at Newbern, as stated above.

II. PORTION ABOVE NEWBERN, N. C.

(*a*) At Streets Ferry, near the eleventh milepost, there is a small platform about 20 feet square with the outer endge on piles on the north side of the river and a dilapidated shelter at a natural landing on the south side. Both of these adjoin the county road. At Cowpen Landing, 14½ miles above Newbern, there is a rough pile structure on the north side of the river in a dilapidated condition with a poor road leading therefrom. At the mouth of Turkey Quarter Creek, 6½ miles above Newbern, there is a shed on a high bank with the outer edge supported by piles in the water. These are the only places where there is anything resembling a wharf. Just above the county bridge at Maple Cypress (the head of low-water navigation) there is a warehouse on the bank owned by the single boat line now operating, which in most cases receives and discharges freight directly to the owners at the numerous natural landing places on the stream. As the structures were mostly built and maintained by the shippers themselves, it is probable that they would be open to use by all water carriers free of charge.

(*b*) No physical connection exists between the water terminals and a railroad, nor is there any provision for interchange of traffic between water and rail carriers.

(*c*) Highways, in a fair state of improvement, have been constructed to each landing.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*d*) The existing terminals are considered adequate for the needs of the small commerce carried on this stream.

TRENT RIVER, N. C.

(*a*) The wharves on the portion of the Trent River under improvement by the United States number 49, of which 31 are at or opposite Newbern, 3 are at Pollocksville, and 3 are at Trenton. They are all of timber construction and generally have pile foundations and plank decking. They have a frontage varying from 2½ feet to 739 feet, the total frontage being about 7,400 feet. The height of decking above water varies from 1½ feet to 11 feet, and the available depth of water at the wharves varies from 1 foot to 13 feet. Sixteen wharves are provided with warehouses of some description, their total floor area being about 91,000 square feet. Three wharves are equipped with standard-gauge and two with narrow-gauge tracks for distributing freight. Four wharves are equipped with one or more hand-operated derricks and the marine railway (No. 3) is operated by a 40-horsepower hoisting engine.

The smaller wharves are used principally for boat landings, log landings, wood landings, and general merchandise, and are found along the river more generally in isolated places. The larger wharves and better equipped ones are found at Newbern, and are applied largely to the large quantities of single items of commerce.

The large wharves at Newbern and at Pollocksville are generally in fair to poor condition. A small part of wharf No. 13 is a public wharf. The existing terminal and transfer facilities are sufficient for the needs of present commerce at all points on this stream except at the city of Newbern, where a public wharf, with storage facilities and mechanical device for handling freight and physically connected with a railroad, is needed.

Most all the terminals are privately owned, and such wharves may be tied up to generally without charge for wharfage when not needed by the owners. The Norfolk Southern Railroad Co.'s wharf at Newbern (No. 16) is open to all water carriers on equal terms, wharfage, storage, and handling tariffs having been issued and being on file with the Interstate Commerce Commission. These rates are charged to all coastwise or foreign vessels. Local boat lines interchanging business with the company are charged no wharfage. The wharf of the Carolina Coast Line Co., at Newbern (No. 17), is open to all water carriers on equal terms; free when transacting business with the company. Wharf No. 13, owned by the First National Bank, at Newbern is open to the public without charge.

(*b*) Besides the railroad wharves No. 16, at Newbern, and No. 1 at Pollocksville, there are one other wharf in Newbern, one other wharf in Pollocksville, and four other wharves opposite Newbern which have railroad sidings. These are all for private purposes, however.

There does not exist between any of the water carriers operating on the Trent River, N. C., and any railroad a mutual contract for in-

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*d*) Necessity for water terminals.

change of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Improved and adequate highways lead from most of the terminals in and near Newbern, and ordinary highways without improvement generally from the wharves elsewhere.

(*d*) Except for the need of a public wharf in Newbern, above referred to, the terminals are adequate for existing commerce.

SWIFT CREEK, N. C.

(*a*) The wharves on the portion of this stream number eight, of which five are at Vanceboro and three distributed between the Neuse River and Vanceboro. Half of them have pile foundations with plank decking. The others are simple landings of logs or of log bulkheads filled behind with earth. They have a frontage varying from 6 to 86 feet, the total frontage being about 240 feet. The wharf levels vary from to 7 feet above the water, and the available water depth at the wharves varies from 1 foot to 3 feet. All but one of these wharves have access to warehouses of some description, the total warehouse floor area being about 6,000 square feet. One wharf only (No. 1) is equipped with 36-inch gauge track for hauling logs to the landing. None of the wharves is provided with any mechanical equipment to load or unload vessels.

The wharves are used principally for boat, ferry, and log landings, for shipping lumber and receipt of general merchandise. The warehouses are used for storing cotton and other freight, and one as a bathouse.

The wharves and warehouses are all in poor condition. They are considered adequate to accommodate the present small commerce on this stream.

All of the wharves are privately owned except No. 2, which is owned by Craven County. They are all open to all water carriers free of charge when not required by the owners.

(*b*) No wharves have physical connection with a railroad.

No mutual contract exists between any of the water carriers operating upon Swift Creek, N. C., and any railroad for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Ordinary unimproved highways lead from each wharf.

(*d*) Water terminals are considered adequate.

LAND WATERWAY FROM PAMLICO SOUND TO BEAUFORT INLET.

(*a*) The wharves on this waterway number 7, distributed throughout its length. They are all of timber construction and usually have

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

pile or stake foundations and plank decking. They are all minor affairs except No. 7, the wharf of the Norfolk Southern Railroad Co. at Morehead City, which has a warehouse 75 by 170 feet, used as a freight depot. None of the wharves has any equipment for handling freight.

The wharves are used as landings for small boats. Wharf No. 7 has an available depth of water of 17 feet, and some freight is shipped by boat from this point.

The wharves are nearly all in poor condition, and the one warehouse also; but the existing terminal and transfer facilities are considered adequate to meet the needs of present commerce.

As far as known no charges have been made by individuals for wharfage, but the permits for wharf construction along the canal proper, on the Government right of way, have contained a provision for equal charges to all for such use—such charges to be subject to the approval of this office.

(*b*) The only wharf which has physical connection with a railroad is that of the Norfolk Southern Railroad on their siding at Morehead City.

No mutual contract exists between any of the water carriers operating upon the inland waterway from Pamlico Sound to Beaufort Inlet and any railroad for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination. The interchange of traffic across the railroad wharf is made on a local basis.

(*c*) Ordinary highways, unimproved, lead from nearly all of the water terminals.

(*d*) Terminal facilities are considered adequate for the needs of existing commerce.

HARBOR OF REFUGE AT CAPE LOOKOUT, N. C.

(*a*) There are two wharves located in the Hook of the Cape, both belonging to the United States life-saving station. They are on pile supports and both covered with buildings.

No. 1 is used as a boathouse and a runway for landing lifeboats. No. 2 is used for boathouse and repair shop for lifeboats.

The wharves and houses are in good condition. No commercial terminal facilities exist.

The facilities mentioned are for United States Government boats only, and are not open to water carriers.

(*b*) Physical connection does not exist between these terminals and any railroad.

No mutual contract exists between any of the water carriers entering the harbor and any railroad for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) No highways exist to these terminals. None is needed.

(*d*) No terminal and transfer facilities are needed at the present time, as there is no commerce except the receiving of supplies for the life-saving station.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

HARBOR AT BEAUFORT, N. C.

(*a*) The wharves contiguous to this harbor number 45.

They are all of timber construction, generally with wooden-pile foundations and plank decking. They have a frontage varying from 3 to 200 feet, the total frontage being about 1,200 feet. The height of decking above water varies from 4 to 11 feet, and the available depth of water at the wharves varies from 2 to 13 feet. Twenty-three wharves are provided with warehouses of some description. Such warehouses have a total floor area of about 34,000 square feet. Two fertilizer works are equipped with modern machinery, with Hunt elevators (Nos. 41 and 42); one wharf (No. 32) pertains to marine railway of Whitehurst & Rice. This railway has two tracks, one 165 feet and the other 100 feet long. The longer one is equipped with a 10-horsepower engine for drawing boats out, and the other one with a hand winch. The wharf of the Atlantic Packing Co. (No. 33) is equipped with two derricks for unloading oysters, and with cars and tracks for transferring oysters from wharf to steamer and elsewhere about the factory. A wharf of the Norfolk Southern Railroad Co. (No. 36) is for unloading coal cars to scows underneath. Eleven wharves are equipped with derricks for handling freight. Wharf No. 20 is a city wharf, and No. 10 is partly owned by the city. The part of wharf No. 10 is a negligible affair. The main public wharf (No. 20) consists of a slip the width of the street between curbs, with a walk of sidewalk width on each side.

The smaller wharves are used for boat landings for row and gasoline boats. Other wharves are used in connection with fish, oyster, fertilizer, cotton-ginning industries, and in connection with stores handling groceries, hardware, dry goods, gasoline, oil, and general merchandise. The warehouses—partly stores and factories—are used to store for sale or shipment all classes of general merchandise.

The wharves and warehouses are generally in fair condition. Terminal facilities at Beaufort are not adequate for the existing commerce, and a public wharf, with storage facilities and mechanical equipment and provided with rail connection to the Norfolk Southern Railroad, is needed.

The terminals are generally open to all water carriers free of charge when not needed by the owners otherwise.

(*b*) Five wharves (Nos. 32, 33, 34, 36, and 37) have sidings from the Norfolk Southern Railroad.

No mutual contract exists between any of the water carriers operating in Beaufort Harbor, N. C., and any railroad for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination. There is no interchange of traffic except on a local basis.

(*c*) A large part of the terminals is not directly connected with any highways, such connections being impracticable, but they are mostly near an improved street of Beaufort.

(*d*) A public wharf is need, as stated above.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

BEAUFORT INLET, N. C.

(*a*) The only wharf construction at this location is the wharf of the United States life-saving station. This wharf is of timber construction, not equipped with mechanical devices, and is free of charge for use by all water carriers when not required for use by the Life-Saving Service. It is in good condition and adequate for the purpose.

(*b*) No physical connection exists between this water terminal and any railroad, and no mutual contract exists between any of the water carriers operating in Beaufort Inlet and any railroad for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) This water terminal has no highway constructed to it, and none is needed.

(*d*) No additional facilities are required for existing commerce.

HARBOR AT MOREHEAD CITY, N. C.

(*a*) The wharves contiguous to the harbor under improvement by the United States number 23. They are all of timber construction and generally with pile foundations and plank decking. They have a frontage varying from 5 to 64 feet, the total frontage being about 390 feet. The height of decking above water varies from 6 to 9 feet and the available depth of water at the wharves varies from 1 to 9 feet. Five of these wharves have buildings on or attached to them, two of them being merely pavilions, two oyster and fish houses, and one (No. 19) being a regular freight warehouse for general merchandise. The total floor area of the last three is about 3,600 square feet. All of the wharves are privately owned. One (No. 5) is equipped with track-connecting wharf with store in rear. Nine wharves are equipped with derricks for handling freight. No. 2 is a marine railway equipped with a 10-horsepower gasoline engine for hauling out boats. The Norfolk Southern Railroad Co.'s wharf and warehouse at the eastern end of the town is included in my report on the inland waterway from Pamlico Sound to Beaufort Inlet.

The wharves are used principally for boat landings in connection with fishing and oyster industries and for general merchandise. The warehouses are used as fish and oyster houses and for freight house for general merchandise.

The condition of the wharves ranges from poor to fair, and of the buildings from poor to good. The river and harbor act of June 25, 1910, contained a provision for the local interests of the town of Morehead City to construct at least one wharf which shall be open to all on equal terms. This wharf has not as yet been constructed, but I am assured that it will be completed by March 31, 1913. Existing terminal facilities are not adequate; the new wharf will be of great service, but it should be provided with storage facilities, etc.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

chanical devices, and rail connection with the Norfolk Southern Railroad Co.

Wharf No. 12 is strictly a private wharf. With this exception all of the wharves are open to all water carriers free of charge when not required by their owners.

(*b*) None of the wharves has railroad sidings. The Norfolk Southern Railroad approximately parallels the wharf front at some 1,000 to 1,200 feet distance.

No mutual contract exists between any of the water carriers using the harbor of Morehead City, N. C., and any railroad for interchange of traffic by prorating as to such long distance as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Improved and adequate highways have been constructed to 11 of the water terminals, and no highways exist to the other 12.

(*d*) To render the terminal facilities adequate, a public wharf, equipped as outlined above, is needed.

NEW RIVER, INCLUDING INLAND WATERWAYS BETWEEN BEAUFORT HARBOR AND NEW RIVER AND BETWEEN NEW RIVER AND SWANSBORO, N. C.

NEW RIVER, N. C.

(*a*) The wharves on the portion of this river under improvement number 29, of which 12 are at or near Jacksonville and 17 are below Sneads Ferry.

They are all of timber construction with pile or stake foundation and have plank decking. They have a frontage varying from 3 to 32 feet, the total frontage being about 800 feet. The height of decking above water varies from 1 to 5 feet and the available depth of water at the wharves varies from 1 to 12 feet. Eighteen of the wharves are provided with warehouses, the total warehouse floor area being about 9,200 square feet. Only one wharf (No. 10) is equipped with track and push cars for transferring freight from wharf to highway and railroad. None of the wharves is provided with mechanical equipment to load or unload vessels. There is one public wharf in Jacksonville (No. 11). Wharves Nos. 2 and 17 are landings for ferry owned, maintained, and operated by Onslow County.

The wharves are used principally for boat landings, ferry landings, hauling out logs, and for transferring freight, consisting of fish and fishing materials. The warehouses are used principally for storage of fish, fishing materials, oil, and general merchandise, and for boathouses.

The wharves and warehouses are generally in poor condition. Existing commerce would be greatly benefited by a public wharf at Jacksonville having rail connection with the Atlantic Coast Line Railroad, provided with storage facilities, and equipped with mechanical devices for handling freight. This could well be located at point just below the railroad bridge.

The city wharf is available and is open to the use of water carriers without charge, and the same condition exists with respect to

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

NORTHEAST (CAPE FEAR) AND BLACK RIVERS AND CAPE FEAR RIVER ABOVE WILMINGTON, N. C.

1. NORTHEAST RIVER, N. C.

(*a*) The wharves on the portion of this river under improvement by the United States number 21, of which 5 are just above Hilton Bridge, 6 at or near Castle Hayne, 1 at Rocky Point Ferry, 4 near Bannermans Bridge, and 2 near Smiths Bridge. The wharves are of timber construction, generally with pile supports and plank decking. They have a frontage varying from 5.5 to 327 feet, the total frontage being about 1,400 feet. The height of decking above water varies from 3 to 10 feet, and the available depth of water at the wharves varies from 2 to 20 feet. Seven wharves are provided with warehouses of some description, the total warehouse floor area being about 7,[illegible] square feet. Three wharves, Nos. 11 and 13 of the Buell-Crocker Lumber Co., and No. 16 belonging to New Hanover County, are equipped with track for handling of lumber, heavy machinery, and crushed rock, respectively. Three wharves, Nos. 1, 3, and 4, of the fertilizer factories have Hunt elevators of 400-ton capacity for receiving fertilizer materials into the factories. The important terminals on this improvement consist of those pertaining to the Camp Manufacturing Co. and the fertilizer works, all of which are located within the first mile above Hilton Bridge.

The small wharves are used as boat landings; a number of larger wharves are used to store lumber and shingles and for loading same on scows. The fertilizer wharves receive vessels loaded with fertilizer materials and unload them. The warehouses are generally used as boathouses or as storehouses for the concerns to which they belong.

The important wharves and warehouses are in good or fair condition, and the facilities, as they exist, are considered adequate for present commerce.

All the wharves are open to all water carriers free of charge, when not needed by the owners.

(*b*) Physical connection with railroads exists in the case of the wharves belonging to the three fertilizer factories and to the Camp Lumber Co.

No mutual contract exists between any of the water carriers operating on the Northeast River, N. C., and any railroad for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(*c*) Improved and adequate highways have been constructed to the principal terminals just above Hilton Bridge. Generally, ordinary and unimproved, but adequate, highways lead from the other terminals.

(*d*) Water terminals are considered adequate.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

2. BLACK RIVER, N. C.

(*a*) No terminals exist on this river from its mouth to the head of improvement at Clear Run. The boats operating make use of landings constructed into the banks by removing or smoothing down the roughness and irregularities. It does not appear that the commerce on this stream requires any wharves.

(*b*) No mutual contract exists between any of the water carriers operating upon the Black River and any railroad for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination. No physical connection exists between the landings on this river and any railroad.

(*c*) Unimproved roads generally are available to each of the earth landings. The roads are adequate.

(*d*) In my opinion no terminal facilities other than the existing earth landings are required for the present commerce.

3. CAPE FEAR RIVER ABOVE WILMINGTON, N. C.

(*a*) The wharves on the portion of this river under improvement by the United States number nine, being fairly well scattered over the 115 miles between Wilmington and Fayetteville. They are generally of timber construction, with pile supports and plank decking, or consist of stone or log bulkheads supporting an earth fill. They have a frontage varying from 29 to 255 feet, the total frontage being about 700 feet. The height of landing above water varies from 2 to 8 feet, and the available depth of water at the wharves varies from foot to 23 feet. Three wharves or landings (Nos. 2, 4, and 8) have warehouses of some description connected with them, the total warehouse floor area amounting to about 2,800 square feet. Two wharves (Nos. 4 and 8) are equipped with 36-inch gauge track for transporting lime to bank and for hauling lumber from sawmill to wharf. The fertilizer wharf (No. 2) is equipped with two Hunt elevators of 50-ton capacity, operated by two 20-horsepower steam engines, and an overhead runway carrying 2-foot tracks for transporting materials from elevators to plant. Two wharves (Nos. 5 and 9) are equipped with derricks operated by steam power. No. 5 is a Government wharf under this office, and No. 9 is a private wharf equipped for handling ties and poles.

The smaller private wharves are used simply for boat landings. Wharf No. 7, in Fayetteville, is used for a passenger and freight landing by the Merchants & Farmers Steamboat Co. The larger wharves are used for receipt of fertilizer materials and shipment of lumber, ties, and poles. The warehouses are used for storage of lime and as lumber sheds.

Except for wharves of the fertilizer works at Navassa and the Government wharf at Kings Bluff, the wharves and warehouses are

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

generally in poor condition. A public wharf, provided with storage facilities, equipped with mechanical devices for handling freight, and having track connection with the railroad is needed at Fayetteville in connection with proper utilization of river improvements now under way. Otherwise water terminals appear to be adequate for existing and prospective commerce.

Vessels are not permitted to make use of wharf No. 2 unless on business connected with the fertilizer works. With this exception the wharves are open to all water carriers free of charge when not needed by their owners.

(*b*) Wharf No. 2, belonging to the Virginia-Carolina Chemical Works, has railroad sidings and physical connection with the tracks of the Atlantic Coast Line Railroad Co. and of Seaboard Air Line Railroad.

No mutual contract exists between any of the water carriers operating upon the Cape Fear River above Wilmington and any railroad for interchange of traffic by prorating as to such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination. While the Atlantic Coast Line has joint through rates and divisions in connection with the boat lines operating between Wilmington and Fayetteville, yet they interchange traffic with those lines on a local basis.

(*c*) Ordinary unimproved highways, but adequate, exist in most cases to the water terminals.

(*d*) A public wharf at Fayetteville is needed.

CAPE FEAR RIVER AT AND BELOW WILMINGTON, N. C.

I. WILMINGTON HARBOR, N. C.

(*a*) There are 73 wharves of all classes abutting on this stream in Wilmington (Nos. 27–99, inclusive).

Public wharves, city of Wilmington.—The public wharves are constructed on street frontages owned by the city, of timber construction and generally in poor condition. They are free for the use of all. The wharves are seven in number. No. 45 is used in connection with the city waterworks for receiving supplies for the pumping station. No. 62 is leased to the Champion Compress Co. No. 69 is used by the fire boat and the general public. No. 66, at the foot of Grace Street, No. 73, at the foot of Princess Street, No. 76, at the foot of Market Street, and No. 83 are open for public use. The total frontage of city wharves is 350 feet. None is equipped with mechanical devices for handling freight, and none is connected with warehouses.

Seaboard Air Line Railway Wharves consist of No. 54, 625 feet frontage (including slip), with warehouses D and E (or Pocomoke); No. 55, 1,106 feet frontage (including slips), with warehouses B and C; and No. 56, 961 feet frontage (including slips), with wa

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

ıouse A and Waterland. The total wharf frontage is about 2,700 'eet. The warehouse floor area is as follows:

	Square feet.
Varehouse A	34,876
Varehouse B	36,473
Varehouse C	37,186
'arehouse D	37,030
ocomoke Warehouse E	25,284
'aterland Warehouse	9,985
Total	180,834

In addition to this floor space within the warehouses, platforms ıd wharves adjacent contain approximately 65,000 square feet of oor space. Inclosed is a blue print[1] of the Seaboard Air Line Railay, D 2-180, dated March, 1912, showing their own tracks and yout of their terminal facilities. They have approximately 1,850 'et of water frontage on the river, and about 1,150 is improved with harves and slips. Their warehouses are fitted with modern meıanical appliances for transferring cargo from the vessels.

Atlantic Coast Line Railroad Co.—The water terminals owned or ntrolled by this company at Wilmington, N. C., are as follows:

Nine hundred and eighty feet extending from Hilton Lumber Co. Cowan Street, on which are two warehouses with wharf (No. 50) ed for general storage purposes; frontage, 133 feet. This wareıuse area is about 46,000 square feet. Balance of this is unimoved.

Eight hundred and six feet Hanover to Redcross Street. This ›nt includes slip 62 feet wide; wharves Nos. 57, 58, 59, and general ›rage warehouse, 144 feet front; coal wharf, 60 feet front; oil ck, 175 feet front; and two brick warehouses covering 300 feet ›nt, with wharf. On the balance of this front there are railroad ıcks extending to the river. This wharf frontage is here approxiıtely 1,300 feet, and the warehouse floor area is about 43,000 square 't.

The storage warehouses referred to above are fitted with modern pliances for transferring cargoes into the buildings.

Extending south from Grace Street, 237 feet front, with wharf o. 67) and two warehouses leased to wholesale merchants.

On the west side of the Cape Fear River, 643 feet north from ırket Street extended. This front includes wharf (No. 35) and ds leased to the American Naval Stores Co.

n addition this company owns about 1,500 feet of river frontage rting just above Point Peter and extending up the river. On this ›perty there are three old wharves (Nos. 41, 42, and 43), with a ıl frontage of 430 feet. These terminals are in bad condition l not in active use.

Vilmington Compress & Warehouse Co. wharves.—This wharf ›. 53) has a frontage of 436 feet. The wharf is covered and used a warehouse, and just back of this there are three warehouses, of them containing a modern compress. The combined floor 'e is about 200,000 square feet. This wharf is equipped with a nt elevator for unloading fertilizer, and the warehouses with dis-

[1] Not printed.

tributing tracks. These warehouses store fertilizers, cotton, and general merchandise. This terminal is in first-class condition.

Government wharves.—These are the wharves of the United States Engineer Department (No. 27), with 302 feet frontage, and those of the United States Treasury Department (Nos. 74 and 75), with 336 feet frontage. No. 27 is used in connection with the Engineer yard. Nos. 74 and 75 form the customhouse wharf, which is used by the Revenue Cutter and by the United States Engineer Department.

Private wharves.—Wharves well equipped with transfer facilities are those belonging to the Springer Coal Co. and the Champion Compress Co., which have adequate accommodations for conducting their individual businesses. The Clyde Line Steamship Co. has a wharf of 175 feet frontage, with a large warehouse. The Stone Co. and J. W. Brooks and D. L. Gore—all wholesale grocers—have commodious and adequate wharves (see Nos. 68, 63, 65, 77, 78 and 79, 7[illegible] and 85). There are several wharves belonging to companies dealing in naval stores, over which a considerable business is conducted.

The public frontage is used by private parties in some cases as private wharves. The wharves are used to receive wood and for furnishing supplies to small power and sail boats and for receiving country produce and taking on general merchandise.

The principal railroad wharves and warehouses, the wharf and warehouses of the Wilmington Compress & Warehouse Co., the wharf and warehouse of the Clyde Line Steamship Co., receive and store for shipment fertilizer materials, fertilizers, cotton, sand, cement, lumber, naval stores, and general merchandise in quantity.

The other private wharves and warehouses handle lumber, [illegible] logs, coal, wood, naval stores, groceries, hardware, and general merchandise, according to the particular business in which the owner is engaged.

The principal railroad wharves and warehouses, the wharf and warehouse of the Wilmington Compress & Warehouse Co., of the Clyde Line Steamship Co., and the more important terminals which have been specially mentioned, are generally in fair to good condition and adequate for the purposes for which they are used. The public wharves are generally in poor condition and inadequate.

The warehouses of the Seaboard Air Line Railway are at this date filled to about 66⅔ per cent of their capacity; those of the Atlantic Coast Line Railroad Co. to about 50 per cent of their capacity, and those of the Wilmington Compress & Warehouse Co. to about [illegible] per cent of their capacity.

The terminal facilities, taken as a whole, are adequate to meet the needs of commerce at the present time at this place; but, their control being in the hands of private interests, their conditions for use can not be said to be most advantageous to the interests of the public at large.

In my opinion terminal facilities constructed and controlled by the city of Wilmington are not adequate to meet properly the needs of present and prospective commerce, and I believe the expenditure of $500,000 would be necessary to secure the proper terminal facilities, which should include a clear wharf frontage of not less than 500 [illegible], a public storehouse of not less than 75,000 square feet, improved

modern mechanical appliances for loading and unloading vessels, and with physical connection by tracks to the railroads.

This perhaps high estimate of $500,000 is based on securing the facilities in Wilmington, where the first cost of the necessary land would be high. Cheaper sites some distance from the city could doubtless be secured, but in my opinion such sites would not serve the purpose.

If the bridge across the Cape Fear River now receiving some consideration should be constructed, the city wharf could well be located on the opposite side of the river from the city proper. In this case it is supposed the site could be secured at a cost permitting the whole layout not to exceed $300,000.

Terms and conditions of use.—Seaboard Air Line Railway terminals.—The use of these terminals by water carriers is limited by the following rules, which were adopted after consultation with and with the approval of the Interstate Commerce Commission:

General restrictions and limitations.—This company does not under this tariff obligate itself to provide wharfage, storage, or handling for property which has not been transported or is not intended to be transported over its lines; and as to the property which has been transported or is intended to be transported over its lines, this company does not obligate itself to provide wharfage, storage, or handling beyond the reasonable capacity of its property and facilities. All services undertaken to be performed by this company under this tariff are further subject to Federal, State, and municipal laws and regulations. Articles of a highly inflammable or explosive nature, or articles of uncertain value, will not under this tariff be provided with wharfage, storage, or handling unless under special agreement. This company does not under this tariff hold itself out to be a public wharfinger, nor does it guarantee berths to vessels; and vessels reporting for loading or discharge (when berthed) will be berthed at proper piers in their order of priority. This company assumes no liability for demurrage to vessels, and all stevedoring (loading or discharge) will be subject to the rules and customs of the port at which such stevedoring is done. Charges for dockage of vessels are in addition to the charges provided for in this tariff, and dockage charges will be assessed and collected by this company in accordance with its local rules.

Atlantic Coast Line Railroad terminals.—The same terms and conditions of use apply as do to the Seaboard terminals.

The Wilmington Compress & Warehouse Co. is the only actual public wharfinger in Wilmington. Their rates for wharfage, handling, and storage are fixed and equal to all, but controlled solely by themselves.

Generally private wharves may be tied to by water carriers and used in a minor way when not required by the occupants; this free of charge.

Physical connection may be said to exist between the public wharves owned by the city and the railroads by means of a railroad belt line extending along the water front at varying distances therefrom, and, if required, actual use may be made by such physical connection. Adequate physical connection with the railroads exist with the terminals of the railroads themselves; with the Wilmington Compress & Warehouse Co., the Champion Compress Co., Springer Coal Co., the Clyde Line Steamship terminal, and others of the more important terminals.

The Atlantic Coast Line Railroad Co. operates through rates and divisions in connection with the Clyde Line Steamship Co. Interchange with the Clyde Line Steamship Co. is made by lighter or by

car transfer through the Clyde Line's terminals. The railroad company has tracks on these terminals, and transfer can be made direct from cars to vessel's hold, or vice versa. On request of the Clyde Line, in event there was sufficient cargo to justify, the railroad company would allow them to dock and handle said cargo at its terminals, but it is stated that conditions are such that the handling of traffic in this manner is not warranted. The through rates and divisions in effect with the Clyde Line apply between New York and points in the interior Eastern States on the one hand and points in North and South Carolina on the other. They have no through rates and divisions in connection with the boats operating between Wilmington and Southport or Wilmington and Fayetteville, but interchange traffic with these lines, and in the event there was sufficient cargo to justify, would permit them to dock at their terminals. As a general thing, however, the transfer is made by dray.

The Atlantic Coast Line Railroad Co. has no through rates and divisions in effect via Wilmington on export or import traffic, but handles a large volume of import traffic and some export traffic over its terminals; said terminals being generally open to vessels or boats handling import traffic, the only limitation being the capacity for handling.

The Seaboard Air Line Railway has interchange arrangements with the Clyde Line Steamship Co. for the interchange of certain traffic through Wilmington, and this interchange, where made by mutual consent, is done under prorating arrangements. The territory to which the Clyde Line Steamship Co. has prorating arrangements through Wilmington is generally restricted on the north to Selma and Raleigh, on the west by Greensboro and Charlotte, and on the south by Columbia, S. C. Because of the more frequent steamship service between New York and Norfolk, there is practically no traffic moving from New York via Wilmington to the interior territory covered by their prorating arrangements with the Clyde Line Steamship Co.

I am infomed that the prorating terms between the Clyde Line and the Atlantic Coast Line Railroad and the Seaboard Air Line through this port are upon the Norfolk division of revenue. From this it is understood that a shipment moving from New York to Wilmington by Clyde Line to Wallace, N. C., or Clarkton, N. C., would earn the same division of revenue to the Atlantic Coast Line in the one instance and the Seaboard Air Line in the other as if the shipment had moved from New York via Norfolk, and the schedule of rates are the same for both routes.

This division, if correctly stated, can not operate to make attractive to the steamship company through transportation of freight from New York to these interior points, and seems to place Norfolk and Wilmington territory on the same footing as Wilmington.

Improved and adequate highways generally have been constructed to the water terminals.

Adequate water terminals, constructed and operated by the city of Wilmington, are needed.

II. BELOW WILMINGTON.

(*a*) The wharves below Wilmington number 30, of which 4 are at Fort Caswell and 13 are at Southport. They are all of timber construction, with pile supports and plank decking. They have a frontage varying from 1 to 226 feet. One wharf at Fort Caswell (No. 1) s equipped with a derrick for handling materials, and the fertilizer 'actory's wharf (No. 21) is equipped with an elevator and two der-icks operated by an engine. Wharf No. 2 at Fort Caswell has a narine railway adjacent, on which boats are drawn by a capstan. Vharf No. 4, life-saving station, has a three-rail track for drawing oats from the water. Wharves 1 to 4 belong to Fort Caswell, No. 5 o the life-saving station, No. 14 to the United States Engineer Dearitment at Southport, and No. 103 to Bald Head Light Station. 'he Government wharves are all in fair to good condition. Some f the private wharves are in poor condition, but the more imporint ones are still serviceable.

The wharves are used principally for boat landings and unloading sh, lumber, and supplies for private parties. The houses are used or storage of fishing material, gasoline, and other supplies, and as sh and oyster houses.

The wharves and warehouses are generally in poor to fair condion, but they are considered adequate to meet the needs of present mmerce.

Excepting the wharves at Fort Caswell, they are all open to water rriers free of charge when not needed by the owners.

(*b*) One wharf (No. 100), owned by J. W. Harper, is used to ansfer passengers and freight between his steamers and trains on e railroad from his wharf at Carolina Beach. This is the only iarf having rail connection.

No mutual contract exists between any of the water carriers operng upon the Cape Fear River and any railroad for interchange of ffic by prorating as to such long-distance traffic as may be desired be carried partly by rail and partly by water to its destination, ept as stated under "Wilmington Harbor."

(*c*) Ordinary unimproved but adequate highways ordinarily exist the wharves.

(*d*) Water terminals are considered adequate.

SCUPPERNONG RIVER, N. C.—No. 1.

DAVIS, owner. Photograph taken December 5, 1912.

) Timber construction; pile foundation; plank deck; 16 feet frontage; 178 long; 2 feet above water; water 3 feet deep. Runway alongside 6 feet wide 165 feet long. Was used for wood landing for fuel on steamboats. Was pped with track. Dilapidated. Open to all water carriers on equal terms;

) No railroad connection. No contract for interchange of traffic.
) Ordinary highway connection.

General location and description.
Physical connection between water terminals and railroads.
Connection with highways.
Necessity for water terminals.

SCUPPERNONG RIVER, N. C.—No. 3.

T. S. SAWYER, owner. Photograph taken December 5, 1912.

(a) Timber construction; pile foundation; plank deck; 61 feet frontage; 1[illegible] feet above water; water 2½ feet deep. Platform in front of house, 10½ feet wide and 30 feet long. Platform on south of house, 29 feet wide and 31 feet long. House, 10 by 30 feet. Used for fish house. No equipment. Poor condition. Open to all water carriers on equal terms; free.

(b) No railroad connection. No contract for interchange of traffic.

(c) Improved highway connection.

SCUPPERNONG RIVER, N. C.—No. 13.

BROWNING MANUFACTURING CO., owners. Photograph taken December 5, 19[illegible]

(a) Timber construction; pile foundation; standard trestle deck; 245 feet long; 8 feet wide; 4 feet above water; water 7 feet deep. Platform on north side, 8 by 90 feet. A boat landing, 6 by 24 feet, is connected to the side of trestle 75 feet from shore. Used for unloading logs from tramcars and boat landing. Equipped with 36-inch gauge track. Fair condition. Not open to water carriers.

(b) No railway connection; connected with steam tramroad only. No contract for interchange of traffic.

(c) Ordinary highway connection.

NOTE.—This description refers to low trestle extending across the picture.

SCUPPERNONG RIVER, N. C.—No. 17.

A. G. WALKER, owner; rented by R. A. Kohloss.
Photograph taken December 5, 19[illegible]

(a) Timber construction; pile foundation; plank deck; 70 feet frontage; [illegible] feet wide; 3 feet above water; water 9 feet deep. Runway to shore, 8 feet wide and 50 feet long. House, 35 by 40 feet. Used for warehouse for general merchandise. No equipment. Fair condition. Open to all water carriers on equal terms; free.

(b) No railroad connection. No contract for interchange of traffic.

(c) Improved highway connection.

SCUPPERNONG RIVER, N. C.—No. 21.

JOHN BATEMAN, owner. Photograph taken December 5, 19[illegible]

(a) Timber construction; pile foundation; plank deck; 14 feet frontage; [illegible] feet long; 2 feet above water; water 2 feet deep. Used for shipping farm products. No equipment. Fair condition. Open to all water carriers on equal terms; free.

(b) No railroad connection. No contract for interchange of traffic.

(c) Ordinary highway connection.

SHALLOWBAG BAY, N. C.—No. 1.

CREEF & CREEF, owners. Photograph taken December 4, [illegible]

(a) Timber construction; pile foundation; plank deck; 7 feet frontage; [illegible] feet long; 3 feet above water; water 2½ feet deep. Platform on south side [illegible] 30 feet. Runway 5 by 35 feet to shore. House 26 by 30 feet. Used in connection with marine railway and storehouse. No equipment. Poor condition. Open to all water carriers on equal terms; free.

(b) No railroad connection. No contract for interchange of traffic.

(c) Improved highway connection.

NOTE.—This description refers to wharf in the foreground.

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.

SHALLOWBAG BAY, N. C.—No. 2.

CREEF & CREEF, owners. Photograph taken December 4, 1912.

(a) Marine railway; timber construction; 218 feet long; gauge of track, 5.5 feet; water 3 feet deep. Wharf alongside is 3 feet wide, 60 feet long, 3 feet above water; water 3 feet deep. Used for hauling out and repairing boats. Equipped with 3-horsepower F. M. & Co. engine, geared to 5:1. Good condition. Open to all water carriers on equal terms; charges for use.
(b) No railroad connection. No contract for interchange of traffic.
(c) Improved street connection.

NOTE.—This description refers to marine railway between the two wharves and the wharf on far side.

SHALLOWBAG BAY, N. C.—No. 5.

T. P. MIDYETT, owner. Photograph taken December 4, 1912.

(a) Timber construction; pile foundation; plank deck; 32 feet frontage; 10 feet long; 3 feet above water; water 3 feet deep. Runway to storehouse 6 feet wide and 127 feet long. House 20 by 72 feet. Used for boat landing and storage for merchandise. No equipment. Poor condition. Open to all water carriers on equal terms; free.
(b) No railroad connection. No contract for interchange of traffic.
(c) Improved street connection.

NOTE.—This description refers to wharf in foreground.

SHALLOWBAG BAY, N. C.—No. 6.

SMITH ESTATE, owner; rented by C. W. Davis.
Photograph taken December 4, 1912.

(a) Timber construction; pile foundation; plank deck; 13 feet frontage; 18 feet long; 3 feet above water; water 3 feet deep. Runway to store 5 feet wide and 124 feet long. House 20 by 60 feet. Used for boat landing and storage of general merchandise. No equipment. Poor condition. Open to all water carriers on equal terms; free.
(b) No railroad connection. No contract for interchange of traffic.
(c) Improved street connection.

NOTE.—This description refers to second wharf—the one with "Dry goods" sign on house.

SHALLOWBAG BAY, N. C.—No. 7.

ED. & JESSE MIDYETT, owners. Photograph taken December 4, 1912.

(a) Timber construction; pile foundation; plank deck; 4½ feet frontage; 24 feet long; 4 feet above water; water 4 feet deep. Used for boat landing. No equipment. Fair condition. Open to all waters carriers on equal terms; free.
(b) No railroad connection. No contract for interchange of traffic.
(c) Improved street connection.

PAMLICO AND TAR RIVERS, N. C.—No. 1.

JOSEPH TRIPP, owner. Photograph taken December 11, 1912.

(a) Timber construction; pile foundation; plank deck; 34 feet frontage; 7½ feet wide; 4 feet above water; water 4 feet deep. House 11 by 16 feet. Runway to shore 4 by 357 feet. Used for shipping farm products and receiving general merchandise and supplies. Track, 2.5-foot gauge. Fair condition. Open to all water carriers on equal terms; free.
(b) No railroad connection. No contract for interchange of traffic.
(c) Ordinary highway connection.

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.

PAMLICO AND TAR RIVERS, N. C.—No. 5.

S. R. FOWLE & SON, owners. Photograph taken December 10, 19[illegible]

(a) Timber construction; pile foundation; plank deck; 165 feet frontage; 95 feet wide; 5 feet above water; water 10 feet deep; covered with shed. Runway to shore 6½ by 268 feet. Platform 24 by 42 feet. Runway around outside of shed 1 foot wide. Capacity of mill 40,000 feet daily. Used in connection with sawmill. Equipped with 3.7-foot gauge track. Fair condition. Free for tying up boats temporarily when not in use by owners.

(b) No railroad connection. No contract for interchange of traffic.

(c) Ordinary highway connection.

PAMLICO AND TAR RIVERS, N. C.—No. 8.

EUREKA LUMBER CO., owners. Photograph taken December 9, 19[illegible]

(a) Timber construction; pile foundation; plank deck; 410 feet frontage; 60 feet wide; 9 feet above water; water 8 feet deep; covered with sheds. Runway to mill is 5 feet wide; 800 feet long; 6 by 8 inch stringers; 3 by 8 inch ties. Platform on south side 30 by 410 feet. Used for storing lumber and loading barges. Equipped with tracks from sheds to mill. Fair condition. Boats are permitted to tie up temporarily while not in use by owners.

(b) No railroad connection. No contract for interchange of traffic.

(c) No highway connection.

NOTE.—For the south frontage see No. 9.

PAMLICO AND TAR RIVERS, N. C.—No. 9.

EUREKA LUMBER CO., owners. Photograph taken December 10, 19[illegible]

(a) Timber construction; pile foundation; plank deck; 42 feet frontage; [illegible] feet wide; 4 feet above water; water 9 feet deep. Connected with No. 8 [illegible] runway 4 by 34 feet. Boat landing for unloading mill supplies. Equipped with derrick having 28-foot boom. Fair condition. Boats are permitted to [illegible] up temporarily when not in use by owners.

(b) No railroad connection. No contract for interchange of traffic.

(c) No highway connection.

NOTE.—This description refers to wharf on left side of picture, and is [illegible] of the 30 by 410 foot platform referred to in No. 8.

PAMLICO AND TAR RIVERS, N. C.—No. 10.

EUREKA LUMBER CO., owners. Photograph taken December 10, 19[illegible]

(a) Timber construction; pile foundation; plank deck; 273 feet frontage; [illegible] feet above water; water 9 feet deep. A blacksmith shop used in connection with mill is on wharf; has a west frontage of 108 feet. Used for coal [illegible] storage for logging gear, and blacksmith shop. No equipment. Fair condition. Boats are permitted to tie up temporarily when not in use by owners.

(b) Atlantic Coast Line Railroad siding. No contract for interchange of traffic.

(c) No highway connection.

NOTE.—This description refers to the wharf at right side of picture, on [illegible] side of the 30 by 410 foot platform referred to in No. 8; not shown in picture.

PAMLICO AND TAR RIVERS, N. C.—No. 12.

A. M. DUMAY, owner. Photograph taken December 9, [illegible]

(a) Timber construction; pile foundation; plank deck; 16 feet frontage; [illegible] feet wide; 4½ feet above water; water 2½ feet deep. Boathouse, 6 by 1[illegible] Used for pleasure-boat landing and summerhouse. No equipment. Good condition. Permitted to tie up temporarily when not used by owner.

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.

(*b*) No railroad connection. No contract for interchange of traffic.
(*c*) Improved street connection.
NOTE.—This description refers to wharf at left side of picture.

PAMLICO AND TAR RIVERS, N. C.—No. 13.

MRS. SAM SHORT, owner. Photograph taken December 9, 1912.

(*a*) Timber construction; pile foundation; plank deck; 14 feet frontage; 6 feet wide; 3½ feet above water; water 4 feet deep. Runway, 3 by 55 feet. Used for boat landing. No equipment. Poor condition. Boats permitted to tie up temporarily when not in use by owner.
(*b*) No railroad connection. No contract for interchange of traffic.
(*c*) Improved street connection.
NOTE.—This description refers to the wharf just to the right of the center of the picture—the wharf to which a small skiff is tied.

PAMLICO AND TAR RIVERS, N. C.—No. 17.

JOHN H. SMALL, M. C., owner. Photograph taken December 9, 1912.

(*a*) Bulkhead, constructed by laying timbers horizontally on top of each other and filled in behind with dirt; 103 feet frontage; 3 feet above water; water 6 feet deep. Two boathouses, each 11 by 20 feet. Used for private landing and boathouse. No equipment Poor condition. Boats are permitted to tie up temporarily when not in use by owner.
(*b*) No railroad connection. No contract for interchange of traffic.
(*c*) Improved street connection.
NOTE.—This description refers to the timber bulkhead at the left side of the picture.

PAMLICO AND TAR RIVERS, N. C.—No. 18.

UNITED STATES GOVERNMENT, owner. Photograph taken December 9, 1912.

(*a*) Bulkhead, constructed of concrete on face and platform; pile foundation; 188 feet frontage; 5 feet above water; water 8½ feet deep. Shed, 31 by 2 feet, used for storing coal; and house, 30 by 60 feet, used for storing supplies for lights and buoys. Used for supply yard for lighthouse department district No. 3. Equipped with davits. Good condition. Boats may tie up temporarily when not used by Government boats.
(*b*) No railroad connection. No contract for interchange of traffic.
(*c*) Improved street connection.
NOTE.—This description refers to the concrete bulkhead at the right side of the picture.

PAMLICO AND TAR RIVERS, N. C.—No. 23.

ATLANTIC COAST LINE RAILROAD CO., owners.
Photograph taken December 9, 1912.

(*a*) Timber construction; pile foundation; plank deck; 143 feet frontage; 5 feet long; 6½ feet above water; water 8 feet deep. Slip, 58 feet wide. Used for transfer of freight from boats to cars and vice versa. Has three standard cattle sidings. Good condition. Open to all water carriers on equal terms; free.
(*b*) Railroad connection with Atlantic Coast Line Railroad. No contract for interchange of traffic.
(*c*) Improved street connection.
NOTE.—This description refers to wharf in center of picture.

BAY RIVER, N. C.—No. 2.

C. MCCOTTER, owner. Photograph taken November 23, 1912.

(*a*) Timber construction; pile foundation; plank deck; 16 feet frontage; 7 feet wide; 4 feet above water; water 5 feet deep. House, 16 by 30 feet. Used for

(1) General location and description.
(2) Physical connection between water terminals and railroads.
(3) Connection with highways.

warehouse for general merchandise. No equipment. Poor condition. No objections to tying up temporarily when not in use by owner.

(b) No railroad connection. No contract for interchange of traffic.

(c) Improved highway connection.

BAY RIVER, N. C.—No. 6.

Photograph taken November 23, 1912.

ATLANTIC COAST LINE RAILROAD CO., owners.

(a) Timber construction; standard trestle; 369 feet long; 4.3 feet above water; total frontage 50 feet; one platform on each side of trestle, each 20 by 83 feet, covered by sheds; 8 feet above water; water 8 feet deep. Transfer freight depot. Equipped with standard-gauge track. Good condition. Open to all water carriers on equal terms; free when transacting business with railroad company.

(b) Atlantic Coast Line Railroad siding. No contract for interchange of traffic.

(c) No highway connection.

BAY RIVER, N. C.—No. 9.

PAMLICO CHEMICAL CO., owners. Photograph taken November [illegible]

(a) Timber construction; pile foundation; plank deck; 69 feet [illegible] platform 9 to 19 feet wide; 5½ feet above water; water 7 feet deep. [illegible] house 8 by 8 feet. Office, 12 by 14 feet, is 23 feet east of wharf, on [illegible] of which is a runway 2 feet wide and 25 feet long; on the east side [illegible] is an unloading platform, 13 feet frontage, 5 feet above water, water [illegible] deep. The office and factory are connected by platform 7 feet wide. [illegible] boat landing in connection with fertilizer factory and cotton gin. [illegible] with derrick having 15-foot boom, operated by Byers 10-horsepower [illegible] drum hoisting engine. Fair condition. No objections to tying up temporarily when not in use by owners.

(b) Norfolk Southern Railroad siding. No contract for interchange of [illegible]

(c) Improved highway connection.

BAY RIVER, N. C.—No. 10.

PAMLICO CHEMICAL CO., owners. Photograph taken November [illegible]

(a) Timber construction; pile foundation; plank deck; 12 feet [illegible] feet long; 3 feet above water; water 4 feet deep. Used for [illegible] Equipped with 36-inch-gauge track. Poor condition. No objections to [illegible] temporarily when not in use by owners.

(b) Norfolk Southern Railroad siding. No contract for interchange [illegible]

(c) Improved highway connection.

NOTE.—This description refers to the wharf seen just to the left of the [illegible] near the left side of the picture.

SOUTH RIVER, N. C.—No. 11.

B. H. THOMPSON, owner. Photograph taken November [illegible]

(a) Timber bulkhead; 68 feet frontage; 2 feet above water, water [illegible] House 16 by 60 feet. Used for boat landing and warehouse. No [illegible] Poor condition. Boats permitted to tie up temporarily when not [illegible] owner.

(b) No railroad connection. No contract for interchange of traffic.

(c) Improved highway connection.

(a) General [illegible] and warehouse.
(b) Physical [illegible] between water terminals and railroads.
(c) Connection with highways.

SMITH CREEK, N. C.—No. 1.

BULKHEAD (Oriental, N. C., owner). Photograph taken November 26, 1912.

(a) Timber construction; piles driven 5 to 6 feet apart, supporting 6 by 12 inch walings, behind which from one to three rows of 2-inch plank are driven; 7 feet above water to top; 6 feet deep on west side. The east side is 122 feet long; south side 1,336 feet long; west side 291 feet long; and the north side 1,000 feet to shore, and continued 533 feet farther by laying 2-inch plank horizontally behind the piles. The bulkhead across the end of creek is 193 feet long, on south end of which is a 2-inch plank wall, supported by piles, 50 feet long, and on the north end the same kind of wall 150 feet long. The north end is being extended. This bulkhead is used for reclaiming land and construction of public wharves. No equipment. On the north and west sides the bulkhead gave way on account of weak construction. Open to water carriers on equal terms; free.
(b) No railroad connection. No contract for interchange of traffic.
(c) Improved highway connection.

NEUSE AND TRENT RIVERS, N. C.—No. 10. (NEUSE RIVER.)

NEWBERN FAIR ASSOCIATION, owners. Photograph taken November 14, 1912.

(a) Timber construction; pile foundation; plank deck; 82 feet frontage; 25 feet wide; 5 feet above water; water 5½ feet deep. Runway to shore 24 by 177 feet. Used by fair association for fairs, amusement park, etc. No equipment. Good condition. Open to all water carriers on equal terms; free.
(b) No railroad connection. No contract for interchange of traffic.
(c) Improved highway connection.

NEUSE AND TRENT RIVERS, N. C.—No. 17. (NEUSE RIVER.)

BROADDUS & IVES, owners. Photograph taken November 14, 1912.

(a) Timber construction; pile foundation; plank deck; 178 feet frontage; 48 feet wide; 8 feet above water; water 10 feet deep. Warehouse on platform 32 by 162 feet. Used for boat landing and storage for fertilizer. Equipped with General Electric motor. Capacity, 100 tons. Fair condition. Private; no objections to tying boats temporarily when wharf is not in use by owners.
(b) Norfolk Southern Railroad siding. No contract for interchange of traffic.
(c) Improved highway connection.

NEUSE AND TRENT RIVERS, N. C.—No. 19. (NEUSE RIVER.)

BROADDUS & IVES, owners. Photograph taken November 14, 1912.

(a) Timber construction; pile foundation; plank deck; 109 feet frontage; 48 feet long; 7 feet above water; water 12 feet deep. House 45 by 105 feet. Connected with cottonseed oil mill by two runways; north runway 8 by 89 feet and south runway 9 by 98 feet. Used for boat landing for unloading cotton seed. North runway equipped with 36-inch gauge track and south runway with 30-inch spiral conveyor. Fair condition. Private; no objections to tying boats temporarily when wharf is not in use by owners.
(b) Norfolk Southern Railroad siding. No contract for interchange of traffic.
(c) Improved highway connection.

NEUSE AND TRENT RIVERS, N. C.—No. 23. (NEUSE RIVER.)

Photograph taken November 14, 1912.

NORFOLK SOUTHERN RAILROAD CO., owners; leased by D. B. Martin.

(a) Timber construction; pile foundation; plank deck; 39 feet frontage; 90 feet long; 12 feet above water; water 16 feet deep. Covered with shed. Warehouse joined on north side, 50 feet frontage and 55 feet long. Used for loading and unloading boats, and for warehouse. Equipped with two Westing-

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.

house motors, 100 tons' capacity each. Two tracks in shed. Fair condition. Open to all water carriers on equal terms; free.

(*b*) Norfolk Southern Railroad siding runs out on wharf. No contract for interchange of traffic.

(*c*) Improved highway connection.

NOTE.—This description refers to the building and wharf at extreme right of picture.

NEUSE AND TRENT RIVERS, N. C.—No. 24. (NEUSE RIVER.)

NORFOLK SOUTHERN RAILROAD CO., owners. Photograph taken November 14, 1912.

(*a*) Timber construction; pile foundation; plank deck; 81 feet frontage; 213 feet long; 8 feet above water; water 16 feet deep. Platform 8 feet wide on north side and 11 feet wide on east side; covered with shed. Used for transfer dock. No equipment. Fair condition. Private; no objections to tying up temporarily when wharf is not in use by owners.

(*b*) Siding along south side for loading and unloading cars; 5 feet above water; water 16 feet deep. No contract for interchange of traffic.

(*c*) Improved highway connection.

NEUSE AND TRENT RIVERS, N. C.—No. 32. (NEUSE RIVER.)

ANNIE JUSTICE, owner. Photograph taken November 15, 1912.
Rented by United States Government, Treasury Department.

(*a*) Timber construction; pile foundation; plank deck; 114 feet frontage; 54 feet wide; 6 feet above water; water 10 feet deep. South runway 18 by 34 feet; north runway 31 by 54 feet. Used for revenue-cutter wharf. No equipment except water connection. Fair condition. Private; not open to water carriers.

(*b*) No railroad connection. No contract for interchange of traffic.

(*c*) Improved highway connection.

NEUSE AND TRENT RIVERS, N. C.—No. 39. (NEUSE RIVER.)

E. H. & J. A. MEADOWS, owners. Photograph taken November 15, 1912.

(*a*) Timber construction; pile foundation; plank deck; 74 feet frontage; 19 feet wide; 8½ feet above water; water 13 feet deep. Runway connecting wharf with factory 19 feet wide and 318 feet long. Used for fertilizer factory which is being moved from above Union Point. Equipment being installed; expect to occupy factory about the first of the year (1913). First-class condition. Private; no objections to tying boats temporarily when wharf is not in use by owners.

(*b*) Norfolk Southern Railroad siding. No contract for interchange of traffic.

(*c*) Ordinary highway connection.

NEUSE AND TRENT RIVERS, N. C.—No. 1. (TRENT RIVER.)

J. A. MEADOWS, owner. Photograph taken November 16, 1912.

(*a*) Timber constructed bulkhead, filled in behind with dirt; frontage on east side 453 feet, on south side 55 feet, and on west side 145 feet; 4 feet above water on east side, 5 feet above water on south side, and 6 feet above water on west side; water 6 feet deep on east side, 10 feet deep on south side, and 5 feet deep on west side. Hay house 26 by 78 feet; woodshed 30 by 50 feet; gristmill 45 by 165 feet, and warehouse on front 55 by 78 feet. Used for wharf and warehouse in connection with gristmill and wood yard. Gristmill equipped with elevator for unloading boats; no other equipment. Poor condition. Private; no objections to tying boats temporarily when wharf is not in use by owner.

(*b*) No railroad connection. No contract for interchange of traffic.

(*c*) Improved street connection.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

NEUSE AND TRENT RIVERS, N. C.—No. 4. (TRENT RIVER.)

J. A. MEADOWS, owner. Photograph taken November 16, 1912.

(*a*) Timber construction; pile foundation; plank deck; 6 feet wide; 228 feet long; 5 feet above water; water 11 feet deep. Used for boat landing for United States naval reserve boat *Elfrida*. No equipment. Fair condition. Private; boats permitted to tie up temporarily when wharf is not in use by owner.
(*b*) No railroad connection. No contract for interchange of traffic.
(*c*) Improved street connection.

NEUSE AND TRENT RIVERS, N. C.—No. 5. (TRENT RIVER.)

E. K. BISHOP, owner. Photograph taken November 16, 1912.

(*a*) Timber construction; pile foundation; plank deck; 41 feet frontage; 190 feet long; 7 feet above water; water 13 feet deep. Platform in front of warehouse 9 feet wide. Used for storage of fertilizer. Equipped with derrick. Fair condition. Private; boats permitted to tie up temporarily only when wharf is not in use by owner.
(*b*) No railroad connection. No contract for interchange of traffic.
(*c*) Improved street connection.

NOTE.—This description refers to the warehouse and wharf on right side of picture. Portion of warehouse at left side of picture is the east side of warehouse described in No. 6. Slip between Nos. 5 and 6 is 55 feet wide and 7 feet deep at the head.

NEUSE AND TRENT RIVERS, N. C.—No. 18. (TRENT RIVER.)

GEORGE EURANKS, owner. Photograph taken November 15, 1912.

(*a*) Timber construction; pile foundation; plank deck; 78 feet long; 6 feet wide; 5 feet above water; water 5 feet deep. Used for boat landing (under construction). No equipment. Poor condition. Private; no objections to tying boats temporarily when wharf is not in use by owner.
(*b*) No railroad connection. No contract for interchange of traffic.
(*c*) Improved street connection.

NOTE.—This description refers to the first wharf above the bridge—the wharf to which the house boat is tied.

NEUSE AND TRENT RIVERS, N. C.—No. 19. (TRENT RIVER.)

MARY HENSLEY, owner. Photograph taken November 15, 1912.

(*a*) Timber construction; pile foundation; plank deck; 111 feet long; 3 feet wide; 4 feet above water; water 5 feet deep. Boathouse on end 19 by 40 feet. Used for boat landing, boathouse, and net spread. No equipment. Poor condition. Private; no objections to tying boats temporarily when wharf is not in use by owner.
(*b*) No railroad connection. No contract for interchange of traffic.
(*c*) Improved street connection.

NOTE.—This description refers to the second wharf above the bridge—the wharf having the house boat at the end of wharf.

NEUSE AND TRENT RIVERS, N. C.—No. 37. (TRENT RIVER.)

ATLANTIC COAST LINE RAILROAD CO., owners. Photograph taken December 17, 1912.

(*a*) Timber construction; pile foundation; plank deck; 85 feet frontage; 40 feet wide; 5 feet above water; water 5 feet deep. Runway 8 feet wide and 38 feet long connects wharf with loading platform, 9 by 46 feet. Used for transfer of freight from boats to cars and vice versa. No equipment. Fair condition. Open to all water carriers on equal terms; free.
(*b*) Atlantic Coast Line Railroad siding. No contract for interchange of traffic.
(*c*) Ordinary highway connection.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

NEUSE AND TRENT RIVERS, N. C. (TRENT RIVER.)—No. 49.

Photograph taken November 15, 1912.

VIRGINIA-CAROLINA CHEMICAL CO., owners.

(a) Timber construction; pile foundation; plank deck; 281 feet frontage on west side; 152 feet frontage on north side; 6 feet 10 inches above water; water 11½ feet deep. Double track being built on west side, the entire length of building. Used for fertilizer mixing plant. Under construction; first-class condition. Private; no objections to tying boats temporarily when wharf is not in use by owners.
(b) Norfolk Southern Railroad siding. No contract for interchange of traffic.
(c) Ordinary highway connection.

INLAND WATERWAY FROM PAMLICO SOUND TO BEAUFORT INLET, N. C.—No. 2.

J. W. DICKINSON, owner. Photograph taken November 7, 1912.

(a) Timber construction; pile foundation; plank deck; 29 feet frontage; 31 feet wide; 5 feet above water; water 4 feet deep. Used for boat landing. No equipment. Fair condition. Private; no objections to tying boats temporarily when wharf is not in use by owner.
(b) No railroad connection. No contract for interchange of traffic.
(c) Ordinary highway connection.

INLAND WATERWAY FROM PAMLICO SOUND TO BEAUFORT INLET, N. C.—No. 7.

Photograph taken November 8, 1912.

NORFOLK SOUTHERN RAILROAD CO., owners.

(a) Timber construction; pile foundation; plank deck; 85 feet frontage; 6 feet wide; 10 feet above water; water 17 feet deep. Platform on west side 43 feet wide and 270 feet long. Warehouse 75 feet wide and 170 feet long. Used for freight depot. No equipment. Poor condition. Open to all water carriers on equal terms; free.
(b) Connected with main line of Norfolk Southern Railroad from Beaufort to Goldsboro, N. C. No contract for interchange of traffic.
(c) Ordinary highway connection.

HARBOR AT BEAUFORT, N. C.—No. 7.

C. S. SANDERS, owner. Photograph taken October 24, 1912.

(a) Timber construction; pile foundation; plank deck; 6 feet above water. The depth of water is 8 feet. This wharf consists of two parts: The east part has a frontage of 8 feet and is 30 feet long, and is used as a fish wharf by Mr Sanders, and the west part has a frontage of 12 feet and 30 feet long and is used by Ike Ramsey for wholesale groceries. These two parts are connected by a platform 18 feet wide and 40 feet long. A 50 by 60 foot house adjoins the wharf. The east part of wharf is used for a fish wharf and the west part in connection with a wholesale grocery. The east part has a derrick having an 18-foot boom and the west part a derrick having a 16-foot boom. The wharf is in fair condition. Open to all water carriers on equal terms; free.
(b) No railroad connections. No contract for interchange of traffic.
(c) No street connection.
NOTE.—This description refers to the wharf in the foreground.

HARBOR AT BEAUFORT, N. C.—No. 20.

CITY WHARF, Beaufort, N. C., owner. Photograph taken October 24, 1912.

(a) Timber construction; pile foundation; plank deck. Consists of two parts: The part of the east side of the street is 49 feet long; has 9 feet frontage; and is 6 feet above water; depth of water is 7 feet. The part on the west side of street

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.

is 54 feet long; has 9 feet frontage and is 6 feet above water; depth of water 6 feet. For public use. No equipment. Water connections to artesian well on east part. The wharves are in fair condition. Open to all water carriers on equal terms; free.

(*b*) No railroad connections. No contract for interchange of traffic.

(*c*) Improved street connection.

HARBOR AT BEAUFORT, N. C.—No. 24.

W. F. DILL, owner. Photograph taken October 24, 1912.
Leased to Standard Oil Co.

(*a*) Timber construction; pile foundation; plank deck; 49 feet frontage; 11 feet wide; and 6 feet above water. Depth of water is 7 feet. The runway connecting the wharf with the shore is 6 feet wide and 99 feet long. A frame house 20 by 31 feet is on the wharf. Used for loading and unloading oil. No equipment. Water connections to artesian well. Wharf is in fair condition. Open to all water carriers on equal terms; free.

(*b*) No railroad connection. No contract for interchange of traffic.

(*c*) Improved street connection.

NOTE.—This description refers to the wharf at the right side of picture.

HARBOR AT BEAUFORT, N. C.—No. 25.

JONES & FARLOW, owners.
Leased to Paul Machine Shop. Photograph taken October 24, 1912.

(*a*) Timber construction; pile foundation; plank deck; 29 feet frontage; 17 feet wide; and 8 feet above water. Depth of water is 6 feet. A frame house 30 by 90 feet is just back of the wharf. Used in connection with machine shop. No equipment. The wharf is in fair condition. Open to all water carriers on equal terms; free.

(*b*) No railroad connections. No contract for interchange of traffic.

(*c*) No highway connection.

NOTE.—This description refers to the wharf and shop at left side of picture.

HARBOR AT BEAUFORT, N. C.—No. 29.

D. S. SANDERS, owner. Photograph taken October 24, 1912.

(*a*) The east part of wharf is timber construction; pile foundation; plank deck; 16 feet frontage; 51 feet wide; and 7 feet above water. Depth of water is 6 feet. The west part of wharf is timber construction; pile foundation; plank deck; 115 feet long; 9 feet frontage; and 6 feet above water. The depth of water is 6 feet. House 33 by 65 feet. The two parts are connected by a platform along the side of the house 4 feet wide and 8 feet long. The United States engineer office is alongside this wharf. Used in connection with cotton gin. No equipment. Wharf is in poor condition. Open to all water carriers on equal terms; free.

(*b*) No railroad connections. No contract for interchange of traffic.

(*c*) Improved street connection.

HARBOR AT MOREHEAD CITY, N. C.—No. 1.

Photograph taken October 25, 1912.

NORFOLK SOUTHERN RAILROAD CO., owners, Atlantic Hotel.

(*a*) Timber construction; creosoted pile foundation; plank deck; 44 feet frontage; 29 feet wide; and 8 feet above water. Depth of water, 4 feet. Pavilion covers the wharf. A boardwalk is constructed from the wharf to the hotel, 16 feet wide and 400 feet long. Bathhouse alongside of walk is 40 by 50 feet. Another wharf built just to the west of the one above noted has 8 feet frontage; 29 feet long for the front part; the rest is 8 feet wide, 248 feet long, and 9 feet above water; depth of water 1 foot. A bathhouse built alongside is 40 by 50

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

feet. Used for boat landing and bathing in connection with hotel. No equipment. Wharf in good condition. Open to all water carriers on equal terms; free.

(*b*) Railroad in street in front of hotel. No contract for interchange of traffic.

(*c*) Opens up in streets of Morehead City.

HARBOR AT MOREHEAD CITY, N. C.—No. 5.

J. T. DAVENPORT, owner. Photograph taken October 25, 1912.

(*a*) Timber construction; pile foundation; plank deck; 21 feet frontage; 16 feet wide and 9 feet above water. Depth of water, 2 feet. A runway connecting the wharf with shore is 5 feet wide and 16 feet long; this walk extends back to the store. Used for boat landing. Equipped with derrick having 16-foot boom. Runway has track for car used in transporting general merchandise from wharf to store. Fair condition. Open to all water carriers on equal terms; free wharfage when not used by owner.

(*b*) No railroad connection. No contract for interchange of traffic.

(*c*) No highway connection.

HARBOR AT MOREHEAD CITY, N. C.—No. 14.

GIB ARTHUR, owner. Photograph taken November 8, 1912.

(*a*) Timber construction; pile foundation; plank deck; 6 feet frontage; 63 feet long to shore and 8 feet above water. Depth of water, 2 feet. Used for boat landing. No equipment. Poor condition. Open to all water carriers on equal terms; free wharfage when not used by owner.

(*b*) No railroad connection. No contract for interchange of traffic.

(*c*) No highway connection.

NEW RIVER, INCLUDING INLAND WATERWAYS BETWEEN BEAUFORT HARBOR AND NEW RIVER AND BETWEEN NEW RIVER AND SWANSBORO, N. C. (NEW RIVER.)—No. 11.

CITY WHARF, Jacksonville, N. C., owner. Photograph taken October 29, 1912.

(*a*) Timber construction; pile foundation; plank deck; 49 feet frontage; 16 feet wide; 3 feet above water; water 7 feet deep. Dilapidated boathouse 12 by 24 feet. Used for boat landing for handling freight. No equipment. Fair condition. Open to all water carriers; free.

(*b*) No railroad connection. No contract for interchange of traffic.

(*c*) Improved highway connection.

NEW RIVER, INCLUDING INLAND WATERWAYS BETWEEN BEAUFORT HARBOR AND NEW RIVER AND BETWEEN NEW RIVER AND SWANSBORO, N. C. (NEW RIVER TO SWANSBORO.)—No. 3.

P. B. SMITH, owner. Photograph taken October 31, 1912.

(*a*) Timber construction; pile foundation; plank deck; 32 feet frontage; 6 feet wide; 5 feet above water; water 8 feet deep. House 30 by 60 feet. Runway on east side of house 6 by 60 feet. Used for boat landing in connection with cotton gin. No equipment. Fair condition. No objection to tying boat temporarily when wharf is not in use by owner.

(*b*) No railroad connection. No contract for interchange of traffic.

(*c*) Ordinary highway connection.

NEW RIVER, INCLUDING INLAND WATERWAYS BETWEEN BEAUFORT HARBOR AND NEW RIVER AND BETWEEN NEW RIVER AND SWANSBORO, N. C. (NEW RIVER TO SWANSBORO.)—No. 8.

SWANSBORO LAND & LUMBER CO., owners. Photograph taken November 1, 1912.

(*a*) Timber construction; pile foundation; plank deck; 97 feet frontage; [illegible] feet wide; 4 feet above water; water 4 feet deep. Shed 26 by 74 feet. Used for storehouse for lumber, and boat landing. Equipped with 27-inch [illegible]

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

track for trucks used in distributing lumber about yard. No objections to tying boats temporarily when wharf is not in use by owners.

(*b*) Swansboro Land & Lumber Co. Railroad goes within 2 miles of Atlantic Coast Line Railroad at White Oak Station. No contract for interchange of traffic.

(*c*) Ordinary highway connection.

NEW RIVER, INCLUDING INLAND WATERWAYS BETWEEN BEAUFORT HARBOR AND NEW RIVER AND BETWEEN NEW RIVER AND SWANSBORO, N. C. (NEW RIVER TO SWANSBORO.)—No. 28.

DAN RUSSELL, owner. Photograph taken November 2, 1912.

(*a*) Timber construction; pile foundation; plank deck; 2 feet wide; 22 feet long; 1 foot above water; water 2 feet deep. Used for boat landing. No equipment. Poor condition. No objections to tying boats temporarily when wharf is not in use by owner.

(*b*) No railroad connection. No contract for interchange of traffic.

(*c*) No highway connection.

NEW RIVER, INCLUDING INLAND WATERWAYS BETWEEN BEAUFORT HARBOR AND NEW RIVER AND BETWEEN NEW RIVER AND SWANSBORO, N. C. (SWANSBORO TO BEAUFORT HARBOR)—No. 2.

RAMP JONES, owner. Photograph taken November 1, 1912.

(*a*) Timber construction; pile foundation; plank deck; 15 feet frontage; 6 feet wide; 3 feet above water; water 4 feet deep. Runway 4 feet wide and 30 feet long. Used for boat landing. No equipment. Fair condition. No objections to tying boats temporarily when wharf is not in use by owner.

(*b*) No railroad connection. No contract for interchange of traffic.

(*c*) No highway connection.

NEW RIVER, INCLUDING INLAND WATERWAYS BETWEEN BEAUFORT HARBOR AND NEW RIVER AND BETWEEN NEW RIVER AND SWANSBORO, N. C. (SWANSBORO TO BEAUFORT HARBOR)—No. 4.

L. N. ENNET, owner. Photograph taken November 5, 1912.

(*a*) Timber construction; pile foundation; plank deck; 3 feet wide; 44 feet long; 2 feet above water; water 1 foot deep. Used for boat landing. No equipment. Fair condition. No objection to tying boats temporarily when wharf is not in use by owner.

(*b*) No railroad connection. No contract for interchange of traffic.

(*c*) Ordinary highway connection.

NEW RIVER, INCLUDING INLAND WATERWAYS BETWEEN BEAUFORT HARBOR AND NEW RIVER AND BETWEEN NEW RIVER AND SWANSBORO, N. C. (SWANSBORO TO BEAUFORT HARBOR)—No. 6.

W. TAYLOR, owner. Photograph taken November 5, 1912.

(*a*) Timber construction; pile foundation; plank deck; 6 feet frontage; 16 feet wide; 4 feet above water; water 3 feet deep. Runway to shore 4 feet wide and 350 feet long. House 12 by 16 feet. Used in connection with fish house. No equipment. Fair condition. No objection to tying boats temporarily when wharf is not in use by owner.

(*b*) No railroad connection. No contract for interchange of traffic.

(*c*) Ordinary highway connection.

NEW RIVER, INCLUDING INLAND WATERWAYS BETWEEN BEAUFORT HARBOR AND NEW RIVER AND BETWEEN NEW RIVER AND SWANSBORO, N. C. (SWANSBORO TO BEAUFORT HARBOR)—No. 21.

W. TAYLOR, owner. Photograph taken November 6, 1912.

(*a*) Timber construction; pile foundation; plank deck; 80 feet frontage; 41 feet long; 5 feet above water; water 5 feet deep. Runway 5½ feet wide and

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

275 feet long has 4.75-foot track for transporting supplies. Another ru 4½ feet wide and 275 feet long is equipped with 3½-foot gauge track for t porting fish from elevator to factory. House 14 by 35 feet. Fair cond Used for boat landing in connection with fish factory. Equipped with elevator operated by 15-horsepower O. & S. steam engine. Capacity of fa 300,000 fish per day. Boatways alongside 14 feet clearance; 12 by 12 stringers; 4 feet above water; water 2½ feet deep. No objections to boats temporarily when wharf is not in use by owner.

(*b*) No railroad connection. No contract for interchange of traffic.

(*c*) Ordinary highway connection.

NEW RIVER, INCLUDING INLAND WATERWAYS BETWEEN BEAUFORT HARB NEW RIVER AND BETWEEN NEW RIVER AND SWANSBORO, N. C. (SWANSB BEAUFORT HARBOR)—No. 22.

C. S. WALLACE, owner. Photograph taken November

(*a*) Timber construction; pile foundation; plank deck; 83 feet front feet wide; 6 feet above water; water 5 feet deep. Runway 8 feet wi 251 feet long has 3.5-foot gauge track for transporting supplies; anoth way 4½ feet wide and 155 feet long has 4-foot gauge track for carry from elevator to factory. Engine house, 12 by 20 feet; tool house. 8 by warehouse, 24 by 40 feet. Capacity of factory, 600,000 fish per day. U boat landing in connection with fish factory. Equipped with 2 Hunt e operated by 25-horsepower H. S. Co. steam engine. Derrick with 18-fo Good condition.

(*b*) No railroad connection. No contract for interchange of traffic.

(*c*) Ordinary highway connection.

NORTHEAST (CAPE FEAR) AND BLACK RIVERS, AND CAPE FEAR RIV WILMINGTON, N. C.—No. 1. (NORTHEAST RIVER.)

Photograph taken October

AMERICAN AGRICULTURAL CHEMICAL CO., owners.

(*a*) Timber construction; pile foundation; plank deck; 210 feet fr feet above water and 30 feet wide. The depth of water is 17 feet. T is used for unloading fertilizer materials from vessels. Equipped Hunt elevator of about 400 tons capacity, daily. No objections to t temporarily when wharf is not in use by owners.

(*b*) Connection with railroad at Navassa by Atlantic Coast Lin siding. No contract for interchange of traffic.

(*c*) Ordinary highway connection.

NOTE.—This description refers to the wharf just to the right of th the picture.

NORTHEAST (CAPE FEAR) AND BLACK RIVERS, AND CAPE FEAR R WILMINGTON, N. C.—No. 2. (NORTHEAST RIVER.)

AMERICAN AGRICULTURAL CHEMICAL CO., owners.

Photograph taken Oct

(*a*) Timber construction; pile foundation; plank deck; 5½ fee feet above water and 53 feet long. The depth of water is 7 f landing for watchman's house, and protection for one 3-inch, or one 5-inch fire-protection pipes. No equipment. The wharf is construction. No objections to tying small boats temporarily whe in use by owners.

(*b*) No connection with railroads. No contract for interchang

(*c*) Ordinary road connection.

NOTE.—This description refers to the wharf at the right of th in front of the dwelling house.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

NORTHEAST (CAPE FEAR) AND BLACK RIVERS, AND CAPE FEAR RIVER ABOVE WILMINGTON, N. C.—No. 21. (NORTHEAST RIVER.)

CAMP LUMBER CO., owner. Photograph taken October 12, 1912.

(a) Timber construction; pile foundation; plank deck; 145 feet frontage; 10 feet above water; water 20 feet deep. Used for loading lumber onto scows and storage wharf. No equipment. Several tracks on the wharf, connecting with a track to the mill are used for distributing lumber. The wharf is in fair condition. No objections to tying boats temporarily when wharf is not in use by owners.

(b) Atlantic Coast Line Railroad siding. No contract for interchange of traffic.

(c) Ordinary highway connection.

NORTHEAST (CAPE FEAR) AND BLACK RIVERS, AND CAPE FEAR RIVER ABOVE WILMINGTON, N. C.—No. 2. (CAPE FEAR RIVER ABOVE WILMINGTON.)

AVASSA GUANO CO., owners. Photograph taken December 28, 1912.

(a) Timber construction; pile foundation; plank deck; 255 feet frontage; feet wide; 4 feet above water; water, 23 feet deep; storehouse, 20 by 75 et. Overhead runway along front 210 feet long, 20 feet wide; runway at ith end to warehouse, 15 feet wide; runway at north end to mixing plant, feet wide. Used for unloading vessels of fertilizer materials. Equipped h 2 Hunt elevators of 350 tons capacity each, operated by two 20-horsepower gines. Overhead runway equipped with 2-foot tracks for carrying materials m elevators to plant. Fair condition. Boats are not allowed to tie to this arf unless having business with the company.

b) Atlantic Coast Line Railroad and Seaboard Air Line Railway sidings. contract for interchange of traffic.

c) Ordinary highway connection.

RTHEAST (CAPE FEAR) AND BLACK RIVERS, AND CAPE FEAR RIVER ABOVE WILMINGTON, N. C.—No. 7. (CAPE FEAR RIVER ABOVE WILMINGTON.)

CHANTS & FARMERS STEAMBOAT CO., owners.
Photograph taken October 14, 1912.

) The north 145 feet of the landing is constructed of stone, originally 7 above water, and the balance 65 feet on the south end is built up of logs horizontally, to form the face, and framed into cross walls. The timber ruction is 3 feet above water. The depth of water is 1½ feet; gauge, 1.2. wharf is used as a passenger and freight landing for the boats running en Wilmington and Fayetteville. No equipment for loading and unload- The wharf is in poor condition and badly in need of repairs. No objec- to tying boats temporarily when wharf is not in use by owners.

No railroad connection. No contract for interchange of traffic.

Ordinary highway connection.

CAPE FEAR RIVER, N. C., AT AND BELOW WILMINGTON.—No. 52.

TIC COAST LINE RAILROAD CO., owners. Photograph taken October 12, 1912.

Timber construction; pile foundation; plank deck; 73 feet frontage and above water. The depth of water is 19½ feet. Used for unloading bulk ls, such as fertilizer materials, etc., from vessels and unloading coal ottom-dump cars onto lighters. Equipped with a Hunt elevator mounted le, which connects the wharf with the yards several hundred feet to the ad arrangement for dumping bottom-dump cars onto lighters. This s under construction and is in first-class condition. No objections to ats temporarily when wharf is not in use by owners.

art of the freight terminals, and is connected to railroads by sidings.

o highway connection.

—This description refers to the wharf at the left of the picture.

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neral location and description.
sical connection between water terminals and railroads.
nection with highways.

CAPE FEAR RIVER, N. C., AT AND BELOW WILMINGTON.—No. 71.

D. L. GORE, owner; leased to J. W. Brooks. Photograph taken October 12, 1912.

(*a*) Timber construction; pile foundation; plank deck; 140 feet frontage; 5 feet above water and 6 to 29 feet wide. The depth of water is 11½ feet. The south 65 feet is used for a passenger and freight wharf for the *Duplin* and *Lisbon;* this part is covered with sheds. The balance, 75 feet, is used by Mr. Brooks for storing cotton. No equipment for loading or unloading. The wharf is in fair condition. No objections to tying boats temporarily when wharf is not in use by owner.

(*b*) Atlantic Coast Line Railroad siding. No contract for interchange of traffic.

(*c*) The property opens up on the different streets.

NOTE.—This description refers to the wharf in center of picture.

CAPE FEAR RIVER, N. C., AT AND BELOW WILMINGTON.—No. 72.

J. W. HARPER, owner. Photograph taken October 12, 1912.

(*a*) Timber construction; pile foundation; plank deck; 142 feet frontage; 6 feet above water; 21 to 27 feet wide. The depth of water is 10½ feet. The wharf is used for general freight and passenger transportation to Carolina Beach, Southport, Fort Caswell, etc. No equipment for loading and unloading. The wharf is in good condition. No objections to tying boats temporarily when wharf is not in use by owner.

(*b*) An Atlantic Coast Line Railroad siding passes along the rear of the property. No contract for interchange of traffic.

(*c*) The property opens up on the different streets.

NOTE.—This description refers to the wharf on the right side of picture.

CAPE FEAR RIVER, N. C., AT AND BELOW WILMINGTON.—No. 73.

CITY WHARF, Wilmington, N. C., owner. Photograph taken October 11, 1912.

(*a*) Timber construction; pile foundation; plank deck; 66 feet frontage; 6 feet above water and 68 feet wide. The depth of water is 9½ feet. Used for boat landing. No equipment for loading and unloading. The wharf is in fair condition. Open to all water carriers; free.

(*b*) No railroad connection. No contract for interchange of traffic.

(*c*) The wharf opens up on all the streets.

NOTE.—This description refers to the wharf at the left of the picture.

CAPE FEAR RIVER, N. C., AT AND BELOW WILMINGTON.—No. 74.

Photograph taken October 11, 1912.

REVENUE-CUTTER WHARF, United States Government, owner.

(*a*) Timber construction; pile foundation; plank deck; 270 feet frontage; 6½ feet above water and 18 to 42 feet wide. The depth of water is 13 feet. Frame house, 34 by 44 feet, on north end of wharf. The wharf is used for tying the revenue-cutter *Seminole.* Used by Government boats only. No equipment for loading and unloading. The wharf is in good condition.

(b) An Atlantic Coast Line Railroad siding is at the rear of the property. No contract for interchange of traffic.

(*c*) Street connection.

NOTE.—This description refers to the wharf across the center of the picture.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

CAPE FEAR RIVER, N. C., AT AND BELOW WILMINGTON.—No. 75.

Photograph taken October 11, 1912.

CUSTOM HOUSE WHARF, United States Government, owner.

(a) Timber construction; pile foundation; plank deck; 66 feet frontage; 7 feet above water and 13 to 19 feet wide. The depth of water is 9½ feet. It is used by the customhouse, Engineer Department, and Quartermaster Department for tying boats and transportation of supplies used by the Government. No equipment for loading and unloading. The wharf is in good condition. Used by Government boats only.

(b) An Atlantic Coast Line Railroad siding is at the rear. No contract for interchange of traffic.

(c) Property opens upon the different streets.

NOTE.—This description refers to the wharf just to the left of Market Street on the right side of picture.

CAPE FEAR RIVER, N. C., AT AND BELOW WILMINGTON.—No. 76.

CITY WHARVES, Wilmington, N. C., owner. Photograph taken October 11, 1912.

(a) Timber construction; pile foundation; plank deck; consists of two parts; the part on the south side of the street has a frontage of 13 feet, 6 feet above water and 30 feet wide; the part on the north side of the street has a frontage of 32½ feet, 5 feet above water and 18 feet wide. The depth of water at lower part is 9½ feet and at the upper part 10 feet. The wharves are used for general freight and passenger traffic across the river by ferry; open to the public free of charge. No equipment for loading or unloading. The wharves are in fair condition.

(b) No railroad connection. No contract for interchange of traffic.

(c) Foot of Market Street.

NOTE.—This description refers to the wharves at the foot of the street on the right of picture.

CAPE FEAR RIVER, N. C., AT AND BELOW WILMINGTON.—No. 85.

Photograph taken October 11, 1912.

). L. GORE, owner; leased to Wilmington Iron Works.

(a) Timber construction; pile foundation; plank deck; 140 feet frontage; ½ feet above water and 11 feet wide. The depth of water is 9 feet. Used in onnection with shops and marine railways. No equipment for loading or unoading. The wharf is in good condition. No objections to tying boats to ndergo repairs.

(b) Atlantic Coast Line Railroad siding in rear. No contract for interhange of traffic.

(c) Street connection.

NOTE.—This description refers to the wharf at left side of picture—just beind tugboats.

CAPE FEAR RIVER, N. C., AT AND BELOW WILMINGTON.—No. 86.

'ILMINGTON DOOR & LUMBER CO., owners. Photograph taken October 11, 1912.

(a) Timber construction; pile foundation; plank deck; 131 feet frontage; feet above water and 28 feet wide. The depth of water is 5½ feet. Used for ading and unloading materials. The wharf is in poor condition; part of it t serviceable. No objections to tying boats temporarily when not in use by ners.

(b) Atlantic Coast Line Railroad siding at rear of wharf. No contract for terchange of traffic.

(c) Street connection.

NOTE.—This description refers to the wharf just to the left of the center of ture.

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.

CAPE FEAR RIVER, N. C., AT AND BELOW WILMINGTON.—No. 87.

W. B. THORPE & Co., owners. Photograph taken October 11, 1912.

(a) Timber construction; pile foundation; plank deck; 195 feet frontage; 6½ feet above water and 18 feet wide. Depth of water is 5 feet. The wharf is used for loading and unloading wood, coal, lath, shingles, etc., and also as a storage yard. No equipment for loading or unloading materials. The wharf is in fair condition. Part of the wharf is leased to the Swift Fertilizer Works for receiving freight. No objections to tying boats temporarily when wharf is not in use by owners.

(b) Atlantic Coast Line Railroad siding in rear. No contract for interchange of traffic.

(c) Street connection.

NOTE.—This description refers to the wharf just to the right of the center of the picture.

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.

Scuppernong River, N. C. No. 1.

UNIV. OF MICH.

Scuppernong River, N. C. No. 3.

UNIV. OF MICH.

Scuppernong River, N. C. No. 13.

UNIV. OF MICH.

Scuppernong River, N. C. No. 17.

UNIV. OF MICH.

Scuppernong River, N. C. No. 21.

OF

Shallowbag Bay, N. C. Nos. 1 and 2.

UNIV. OF MICH.

Shallowbag Bay, N. C. Nos. 5 and 6.

UNIV. OF MICH.

Shallowbag Bay, N. C. No. 7.

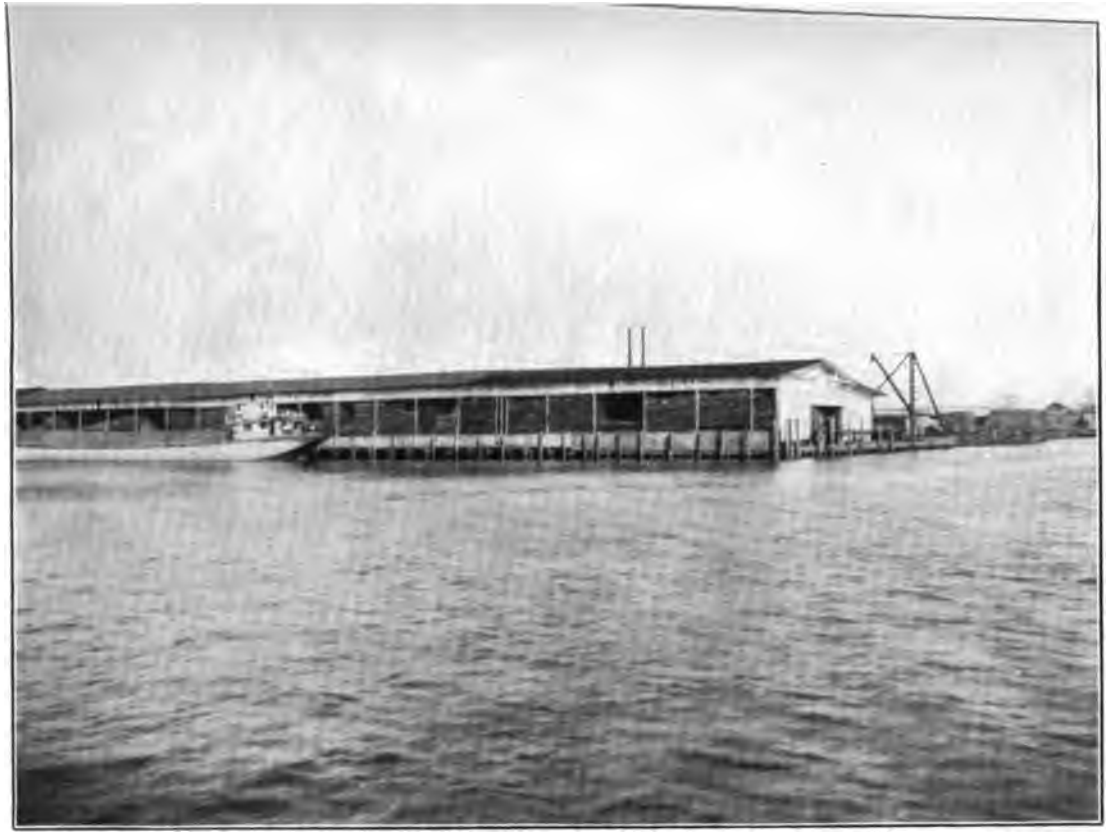
UNIV. OF MIC

Pamlico and Tar Rivers, N. C. No. 1.

UNIV. OF MI

Pamlico and Tar Rivers, N. C. No. 5.

UNIV. OF MICH.



Pamlico and Tar Rivers, N. C. No. 8.

UNIV. OF

Pamlico and Tar Rivers, N. C. Nos. 9 and 10.

UNIV. OF

Pamlico and Tar Rivers, N. C. Nos. 12 and 13.

UNIV. OF MICH.

Pamlico and Tar Rivers, N. C. Nos. 17 and 18.

UNIV. OF MICH.

Pamlico and Tar Rivers, N. C. No. 23.

UNIV. OF MICH.

Bay River, N. C. No. 2.

UNIV. OF MICH.

Bay River, N. C. No. 6.

UNIV. OF MICH.

Bay River, N. C. Nos. 9 and 10.

UNIV. OF

South River, N. C. No. 11.

UNIV. OF MIC

Smith Creek, N. C. No. 1.

UNIV. OF MICH.

Neuse and Trent Rivers (Neuse River), N. C. No. 10.

UNIV. OF MICH.

Neuse and Trent Rivers (Neuse River), N. C. No. 17.

UNIV. OF

Neuse and Trent Rivers (Neuse River), N. C. No. 19.

UNIV. OF MICH.

Neuse and Trent Rivers (Neuse River), N. C. No. 19.

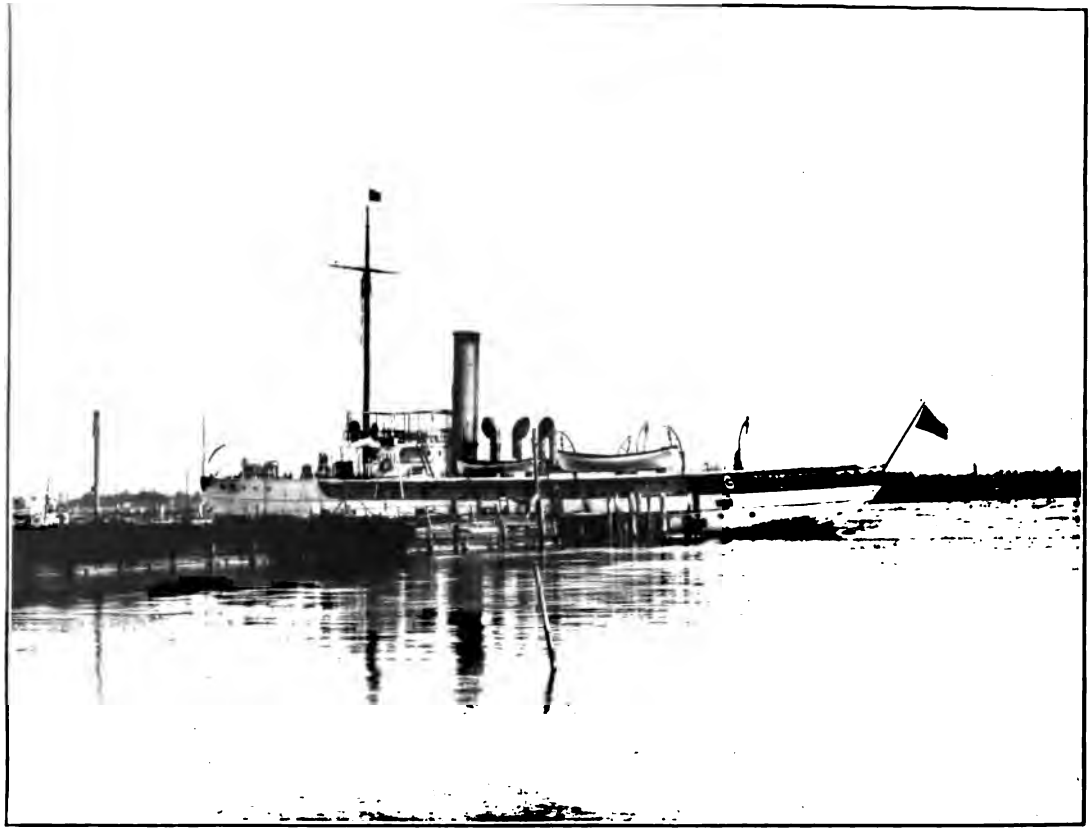
UNIV. OF MICH.

Neuse and Trent Rivers (Neuse River), N. C. No. 23.

UNIV. OF MICH.

Neuse and Trent Rivers (Neuse River), N. C. No. 24.

UNIV. OF MICH.

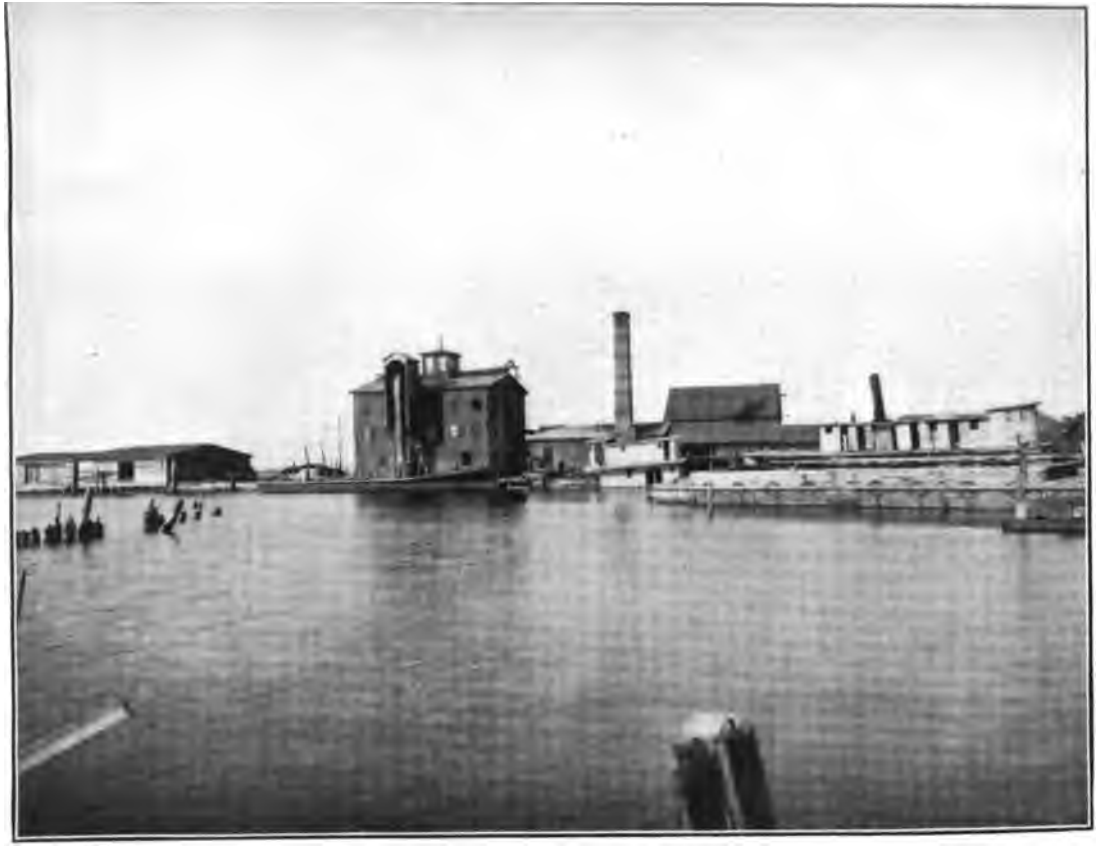


Neuse and Trent Rivers (Neuse River), N. C. No. 32.

UNIV. OF MICH.

Neuse and Trent Rivers (Neuse River), N. C. No. 39.

UNIV. OF



Neuse and Trent Rivers (Trent River), N. C. No. 1.

UNIV. OF MICH.

Neuse and Trent Rivers (Trent River), N. C. No. 4.

UNIV. OF MIC.

Neuse and Trent Rivers (Trent River), N. C. No. 5.

UNIV. OF MICH.

Neuse and Trent Rivers (Trent River), N. C. Nos. 18 and 19.

UNIV. OF MICH.

Neuse and Trent Rivers (Trent River), N. C. No. 37.

UNIV. OF MICH.

Neuse and Trent Rivers (Trent River), N. C. No. 49.

UNIV. OF MICH.

Inland Waterway from Pamlico Sound to Beaufort Inlet, N. C. No. 2.

UNIV. OF

Inland Waterway from Pamlico Sound to Beaufort Inlet, N. C. No. 7.

UNIV. OF MICH.

Harbor at Beaufort, N. C. No. 7.

UNIV. OF MIC

Harbor at Beaufort, N. C. No. 20.

UNIV. OF

Harbor at Beaufort, N. C. Nos. 24 and 25.

UNIV. OF MICH.

Harbor at Beaufort, N. C. No. 29.

UNIV. OF MICH.

Harbor at Morehead City, N. C. No. 1.

UNIV. OF MICH.

Harbor at Morehead City, N. C. No. 5.

UNIV. OF

Harbor at Morehead City, N. C. No. 14.

UNIV. OF N. H.

New River. No. 11.

UNIV. OF MICH.

New River (New River to Swansboro). No. 3.

UNIV. OF MICH.

New River (New River to Swansboro). No. 8.

UNIV. OF MICH.

New River (New River to Swansboro). No. 28.

UNIV. OF MICH.

New River, N. C. No. 2.

UNIV. OF MICH.

New River, N. C. No. 4.

UNIV. OF MICH.

New River, N. C. No. 6.

UNIV. OF N.-H.

New River, N. C. No. 21.

UNIV. OF MICH.

New River, N. C. No. 22.

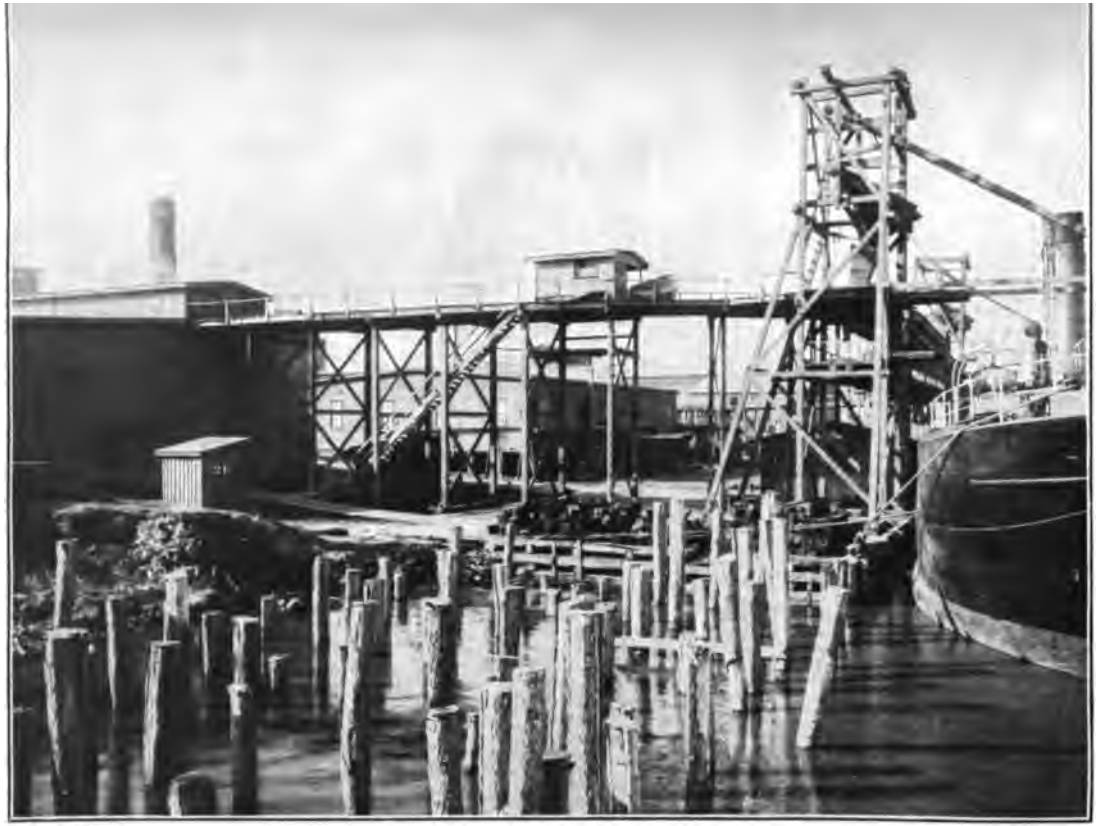
UNIV. OF MICH.

Northeast (Cape Fear) and Black Rivers (Northeast River). Nos. 1 and 2.

OF

Northeast and Black Rivers (Northeast River). No. 21.

UNIV. OF MICH.



Northeast and Black Rivers (Cape Fear River above Wilmington). No. 2.

UNIV. OF

Northeast and Black Rivers (Cape Fear River above Wilmington). No. 7.

UNIV. OF

Cape Fear River, N. C., at and below Wilmington. Nos. 52 and 53.

UNIV. OF MICH.

Cape Fear River, N. C., at and below Wilmington. Nos. 54 and 55.

UNIV. OF

Cape Fear River at and below Wilmington, N. C. Nos. 56, 57, 69, 70.

UNIV. OF MICH.

Cape Fear River, N. C., at and below Wilmington. Nos. 71, 72, 73, 74.

UNIV. OF

Cape Fear River, N. C., at and below Wilmington. Nos. 75, 76, 85, 86.

UNIV. OF MICH.

Cape Fear River, N. C., at and below Wilmington. No. 87.

UNIV. OF

REPORT OF MAJ. G. P. HOWELL, CORPS OF ENGINEERS, OF THE CHARLESTON, S. C., DISTRICT.

[The letters (*a*), (*b*), (*c*), and (*d*) indicate subheadings as shown by footnotes.]

WACCAMAW RIVER, N. C. AND S. C.

General.—There is more business on this river than on any other one tributary to Georgetown. The bulk of the business is between Georgetown and Conway. The rail connections between Conway and Georgetown and the rest of South Carolina are circuitous, but the river connection is direct.

(*a*) There are two river lines to Conway. At Georgetown the agent of the line provides a wharf and warehouse, which is free and open to all carriers. At Conway the same conditions exist. At the intermediate landings there are also wharves, free for the boats. The banks are low and not subject to overflow, and consequently the handling of freight by hand is easy. The terminals are ample.

Above Conway smaller boats run at favorable stages about 50 miles farther. The same kind of terminal exists there.

(*b*) At Georgetown the boats transfer cargo at the railroad wharf and at the wharves of the other river lines, but there is no prorating of through business. The terminals at Conway are reached by the railroad, but none of the others are.

(*c*) Adequate highways exist to the terminals at Georgetown and Conway. The roads at the other terminals are not adequate, but they are better than the ordinary country roads.

LITTLE PEDEE RIVER, S. C.

General.—This stream is little used. At the lower end there is some rafting of logs and in the fertilizer season a gasoline boat takes freight up to a point about 50 miles above the mouth. There are also fishing boats.

(*a*) A short distance below the point where the river empties into the Great Pedee River, a warehouse has been built on the bank, where freight is left by schooners or the boats navigating the Great Pedee. The Little Pedee boat takes this freight and puts it off at river landings as far as Gallivants Ferry, where there is a good timber wharf and warehouse. All freight is handled by hand. The landings are private but are free to all boats. The terminals are ample for the business handled.

(*b*) There is no connection between railroads and terminals, and no prorating of through business.

(*c*) There is a good highway at Gallivants but poor ones at the other landings.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

GREAT PEDEE RIVER, S. C.

General.—Although this river has been improved as far as the town of Cheraw, 167 miles above the mouth, navigation is now confined to the lower 70 miles.

(*a*) Two river steamboats, each representing a different line, run from Georgetown to a river landing called Allisons, stopping at various other landings en route. At Georgetown the agent of the line provides a wharf and warehouse, which is free and open to all carriers. At Allisons there is a wharf. At the other landings the freight is generally placed on the bank. Such landings are free and open to all carriers. The freight is handled by hand. The Georgetown and Allisons terminals are ample, but the river landings are inefficient.

A few years ago an attempt was made to run boats to Cheraw. A terminal was built at the foot of one of the streets; a warehouse was erected and an inclined tramroad leading to the boat's deck on which a car ran, operated by a hoisting engine. The total cost of the terminal was $13,000. No use is now made of it.

(*b*) At Georgetown the boats transfer cargo at the railroad wharf and at the wharves of the other river lines. One of the lines has joint rates with the railroad and other water lines, such tariffs being on file with the Interstate Commerce Commission.

There is no connection at the other landings with railroads.

(*c*) Adequate highways exist to the terminals at Georgetown and Cheraw. The highways to the terminals are poor.

GEORGETOWN HARBOR, S. C.

General.—This harbor is being improved under the appropriation for "Improving Winyah Bay." Along the front of the city on the Sampit River there is a length of 7,000 feet on the left bank of the river where terminals exist. No use is now being made of the right bank; the large sawmill located there has not been operated for some years.

(*a*) The wharves are timber bulkheads without slips. At the foot of each street running to the river the city maintains a landing place 60 feet wide, free to all. There are six of these landings, but wharves do not exist at all of them.

The other wharves, eight in number, are private. Five of them are used for commercial boats, the Clyde Line to New York, the Baltimore & Carolina Steamship Co., running to Baltimore and Charleston; and the river boats, of which there are six lines—two to the Waccamaw River, two to the Great Pedee, one to Black and Mingo Creek, and one to Congaree. Each line has an agent in Georgetown, and the wharf belongs to the agent. He is paid on a percentage basis, generally 5 per cent, and the furnishing of a wharf is included in his duties. The agent allows boats of the other lines to use his wharf to receive and discharge cargo without pay. There is therefore no charge for dockage, wharfage, or handling. Free reciprocity exists. The agent of the Congaree River Line to Colum-

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

ı has no wharf, but his boat is allowed free use of the other wharves. ıe only road running to Georgetown, the Georgetown & Western, s a wharf for the interchange of freight between the road and the ats, no charge being made. The wharf has a frontage of 500 feet, th warehouse. It is customary for a boat to proceed to the various narves in loading and unloading. The large ships of the Clyde ıne do not do this; the drayage charge to the railroad wharf is cents per 100 pounds. Freight is handled by hand trucks and in re cases by ships' tackle.

There are two wharves belonging to lumber companies. They are ɔt open for general use. The wharf of the Atlantic Coast Lumber orporation is 1,600 feet long and covered. There are no mechanical ɔpliances for handling the lumber.

As these wharves are located in fresh water, they are durable. he amount of business done over them is not large, and the wharves re ample.

(*b*) The railroad wharf and the wharf of the Atlantic Coast ıumber Corporation are reached by railroad tracks. None of the thers are so provided.

Some of the lines have through bills of lading. The Baltimore & 'arolina Steamship Co., the People's Steamboat Co. up the Great 'edee River, and the line to Columbia have joint rates with the ailroads and other water lines, such tariffs being on file with the nterstate Commerce Commission.

(*c*) Adequate highways have been constructed to the terminals.

MINGO CREEK, S. C.

General.—Commerce on this stream is carried to Georgetown over the lower portion of the Black River, which empties into Winyah Bay. The boats in the Mingo Creek business also touch at Black River landings.

(*a*) One river line runs as far as Mingo (or Hemingway) Bridge. At Georgetown the agent of the line provides a wharf and warehouse, which is free and open to all carriers. There are 15 landings on Black River and Mingo Creek. They are private landings belonging to the persons who own the land, but no charge is made to boats for their use. As the banks are low, there are generally wharves at the landings, and the transfer of freight by hand is easily done. At Rhems and Mingo Bridge the wharves are substantially built. The terminals are adequate for the business.

(*b*) At Georgetown the boats transfer cargo at the railroad wharf and at the wharves of the other river lines, but there is no prorating of through business. None of the terminals are reached by railroads.

(*c*) Adequate highways exist to the terminals at Georgetown, and at Rhems and Mingo Bridge. The roads at the other terminals are not adequate, but they are better than the ordinary country roads.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

SANTEE RIVER, S. C.

General.—This river is formed by the junction of the Congaree and Wateree Rivers. Hence traffic on these rivers pass over the Santee. The Santee is connected by the Estherville-Minim Creek Canal to Winyah Bay and Georgetown.

(*a*) Besides the line of river steamers to Columbia on the Congaree River, the only business done on the river is logging. Along the lower portion of the river towboats take rafts to the mills at Georgetown, and along the upper portion to a mill at Ferguson. At Ferguson there is a wharf at which boats land, and along the river there are landings where freight is placed on the bank. Such landings are free and open to all. The freight is handled by hand. Such terminals are inefficient, but it is not believed that better ones will be provided until the country becomes more populous. There are no towns or large villages along the route.

(*b*) There is no connection between railroads and terminals and no prorating of through traffic.

(*c*) At Ferguson there is an adequate highway to the terminals, but at the others the roads are the usual bad country roads.

WATEREE RIVER, S. C.

General.—There is now and has been for a long time no navigation on this stream. The Government has not kept the river cleared of obstructions. A boat is now being built for this purpose. There are no terminals.

(*d*) It is intended that boats shall run from Georgetown up the Santee and Wateree Rivers to Camden. The river is about 2 miles from Camden and a good road leads thereto. The municipality should purchase land on the river bank just below the highway bridge, build a wharf above high water with a warehouse and inclined tramroad leading to deck of boat. At the Georgetown end the boat line would probably use existing terminals.

CONGAREE RIVER, S. C.

General.—The navigation in this river is from Columbia to Georgetown via the Congaree and Santee Rivers, the Estherville-Minim Creek Canal, and Winyah Bay. One line of river steamers runs between Columbia and Georgetown.

(*a*) At Georgetown the line has no regular terminal, but proceeds from wharf to wharf for its business, no charge being made by the owners of the wharves. At Columbia, owing to the fact that the Government dam 2 miles below Columbia is under repair and the lock can not be used, the boats have a temporary terminal on the river bank at a landing called Granby. A narrow-gauge track laid on the incline of the bank allowed a car to run down to the deck of the boat and be hauled back by a team of horses to a warehouse on the

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity, number, and appropriate location of terminals.

bank. From the warehouse the freight was taken in wagons to Columbia. The warehouse was washed away in the spring of 1912 and a tent replaces it. The terminal belongs to the river line and is not open to all comers.

Along the river there are private landings, where freight is handled for the locality. The freight is handled by hand, being taken up the gangplank and placed on top of the bank. Sometimes there is a small warehouse for the freight.

The river terminals are crude and inefficient. The company does not care to construct a proper terminal at Columbia until it can reach the city.

(*b*) At Georgetown the boats transfer freight at the railroad wharf, but at no other place is there connection to the railroad. The line prorates on through traffic at Georgetown with the railroad and the other river boats; the tariffs are on file with the Interstate Commerce Commission.

(*c*) Adequate highways exist to the terminals only at Georgetown. The other landings lie on the river bank and the roads to them pass through the overflowed bottom land. No attempt is made to maintain good roads. Proper terminals will not be built until the roads thereto are in good condition, and this will not be done until the adjacent land is brought under cultivation and raises such abundant crops that the planters will see it is to their interest to levee the banks and to provide good roads.

PRELIMINARY REPORT ON INLAND WATERWAYS BETWEEN CHARLESTON AND ALLIGATOR CREEK, S. C.

General.—This waterway extends along the coast from Charleston to McClellanville behind the outlying cordon of sand islands through the salt creeks and bays in the marsh lying between these islands and the mainland.

(*a*) At Charleston there is a wharf at which land the boats navigating the waterway. It is free to all, and the charge for the use is $2 per month for each boat. The wharf belongs to the Charleston Terminal Co. At McClellanville there is a similar wharf belonging to private parties, open to all boats at a charge of $2 per month per boat. Along the route there are private landings, generally a pile wharf, at which the boats touch, no charge being made. There is also at McClellanville a private wharf belonging to an oyster canning factory.

Boats with special cargoes such as vegetables generally go to special wharves in Charleston for the reception of such freight, no charge being made for dockage or wharfage.

The freight is handled by hand. This method is satisfactory for this class of freight. The terminals are ample for the present business.

(*b*) The wharf at Charleston is reached by railroad. The business is handled locally and there is no prorating.

(*c*) Adequate highways extend to the terminals.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

FINAL REPORT ON INLAND WATERWAYS BETWEEN CHARLESTON AND ALLIGATOR CREEK, S. C.

With reference to the private wharves along the waterway between Charleston and Alligator Creek, complaint has been made that at some of these outside boats are not allowed to land, and consequently people living back in the country can not ship goods by this waterway. The waterway touches the highland only at intervals, and the complaint concerning the wharves is made generally against private wharves whose owners also operate a country store. They therefore desire that people should trade at their store instead of bringing in goods by water from Charleston. Since it is desirable that municipalities should own or control public wharves, it seems that in this analogous case the county authorities should provide wharves free for all.

CHARLESTON HARBOR, S. C., PRELIMINARY REPORT.

General.—This harbor is being improved under three separate appropriations, "Improving Charleston Harbor," "Improving Ashley River," "Improving Shipyard Creek." The length of the water front from the upper wharf on Cooper River down that river, including Shipyard Creek, and up Ashley River to the upper wharf on that river, is 15½ miles. From this upper wharf on Cooper River down along Shipyard Creek to the city limit the distance is 6½ miles; within the city limits on the Cooper and Ashley fronts the water front is 7 miles long; above the city limit on the Ashley the water front is 2 miles long.

(*a*) The city owns no terminal. It controls the water front at the southern end at the junction of the Cooper and Ashley Rivers, but it holds such front solely for park or boulevard purposes. Just north of its present holdings it is negotiating for the purchase of 800 feet of front. This stretch was formerly covered with wharves, but none remain now with the exception of two, one of which is leased to the United States Government as a wharf for its dredges, and the other is used as a landing place for the small boats plying on the inland waterways.

On the 7-mile front on the Cooper River and Shipyard Creek above the city limits there are industrial concerns located—three fertilizer factories, three lumber mills, two depots for oil and petroleum products, and the United States navy yard. These are private wharves and are not open to general use. A new cotton compress is now being built, with a wharf on the river, where export cotton will be shipped on the same terms as at the other cotton wharves.

On the 2-mile front on the Ashley River above the city limits there are 12 fertilizer factories. Pile wharves extend a short distance into the river, with pierheads, on which there are Hunt towers driven by electricity and cars run by electricity to unload the cargo from the ships' holds and transfer it to warehouses. In five of such plants 90,000 tons of fertilizer material were handled the past year. Their general efficiency is good. These terminals are not open to general use.

(*a*) General location and description.

Within the city limits most of the frontage is owned by the two railroads that enter Charleston, the Atlantic Coast Line and the Southern. The former has two terminals. The upper one is used for the discharge and storage of fertilizer material; the wharf is 300 feet wide, with a warehouse of 20,000 tons capacity. The lower wharf is 420 feet long, with warehouse 50 feet by 200 feet. It is used for lumber and vegetables. The Southern Railway has four wharves, with slips about 450 feet long. Two of these wharves are leased to the United Fruit Co. and to the Southern Steamship Co. One wharf is used for the discharge of fertilizer materials, and the other for the shipment of vegetables. In addition to the foregoing wharves the railroads own jointly, through the Charleston Terminal Co., a terminal for large deep-water vessels, 1,600 feet long, where the bulk of the business of the large foreign vessels is done, and where merchandise, especially fertilizer material, is stored for shipment into the interior. The company has, besides, a cotton wharf, 200 feet long and 300 feet wide, where cotton is loaded for export. Cargo is generally handled at these wharves with ship's tackle and trucks. The fertilizer wharves have Hunt towers. The efficiency of these terminals is poor, since vessels have to lie in stream awaiting berths. Either the apparatus for handling cargo should be bettered or the number of wharves increased. These terminals are open to use by all water carriers on equal terms. No charge is made for dockage. There is a regular tariff charge on wharfage for the various commodities, the charge being the same at all terminals. The tariff is on file with the Interstate Commerce Commission. On fertilizer material the charge is 20 cents per ton; on cotton, 5 cents per bale. The charges are the same at all South Atlantic and Gulf ports all the way from Virginia ports to and including New Orleans.

There are four regular coastwise lines at Charleston. The Clyde Line maintains a freight and passenger service to New York and Jacksonville, Fla., and freight service to Boston. The Baltimore & Carolina Steamship Co. has freight steamers to Baltimore via Georgetown, S. C. The Philadelphia & Gulf Steamship Co., between Philadelphia and New Orleans, touches here with freight steamers. The Southern Steamship Co. brings sugar here from Philadelphia. The only foreign line is the United Fruit Co., which brings in bananas from Jamaica. These lines lease terminals—the Southern Steamship Co. and the United Fruit Co. from the Southern Railway, and the other three from the Charleston Terminal Co. The Clyde Line has just purchased from the terminal company 1,000 feet of water front, where their present wharves are located, and will construct new wharves with slips 500 feet long. Cargo is handled by hand trucks. The local managers state that since the bulk of the business is package freight, this method is cheaper than the apron conveyer or electric trucks. These terminals are not open to general use. No charge is made for wharfage on cargo arriving, but on certain shipments originating at Charleston there is a wharfage charge. On traffic not covered by through rates, but destined for interior points, there is a combined wharfage and transfer charge.

With respect to private wharves—there are two coal wharves, each capable of receiving one vessel at a time. Coal is discharged at one wharf by hoisting engine and Hunt's automatic elevator, and at the other by ship's tackle and cars pushed by hand on elevated

track. The gas company also maintains a wharf at which it receives coal. There is a ferry wharf and a wharf where tugboats tie up and gasoline boats discharge cargoes of vegetables, sea-island cotton, etc. This last wharf belongs to the Charleston Terminal Co.; a charge of $2 per month is made for the use by any gasoline boat. The Unitel States Government has two stone wharves at the customhouse, which are used by the lighthouse tenders and other Government boats, and there is a wharf at the new immigration station. Another cotton compress is located on Cooper River, where vessels receive cargo on the same terms as at the wharf belonging to the terminal company. On Ashley River there is a wharf belonging to a rice mill and a wharf pertaining to an abandoned mill where small boats on the inland-waterway route are allowed to land.

With the exception of the customhouse wharves and the rice-mill wharves, the wharves are built on piling, generally untreated piles. It is not unusual for portions of such wharves to fall into the water. The warehouses are wooden sheds, flimsy in appearance. A more permanent and substantial style of building should be adopted. The terminals would then be but little affected by the occasional hurricanes that visit this vicinity.

(*b*) All the terminals are served by railroads, either by direct connection with the Atlantic Coast Line and the Southern or over the tracks of the Charleston Terminal Co., which is owned jointly by the two roads.

The Clyde Steamship Co. and the Baltimore & Carolina Steamship Co. handle long-distance traffic on through bills of lading, prorating with the railroads. The through rates are on file with the Interstate Commerce Commission. On such business the expense of handling is absorbed in the through rate.

(*c*) Adequate highways for teams have been constructed to the terminals, except those that do strictly railroad business.

The tariffs above referred to will be given in the final report.

FINAL REPORT ON CHARLESTON HARBOR, S. C.

A map of the water front on the Cooper and Ashley Rivers is inclosed, showing the present terminals and the ownership of the water front, whether belonging to the railroads, to the city, or to private parties.

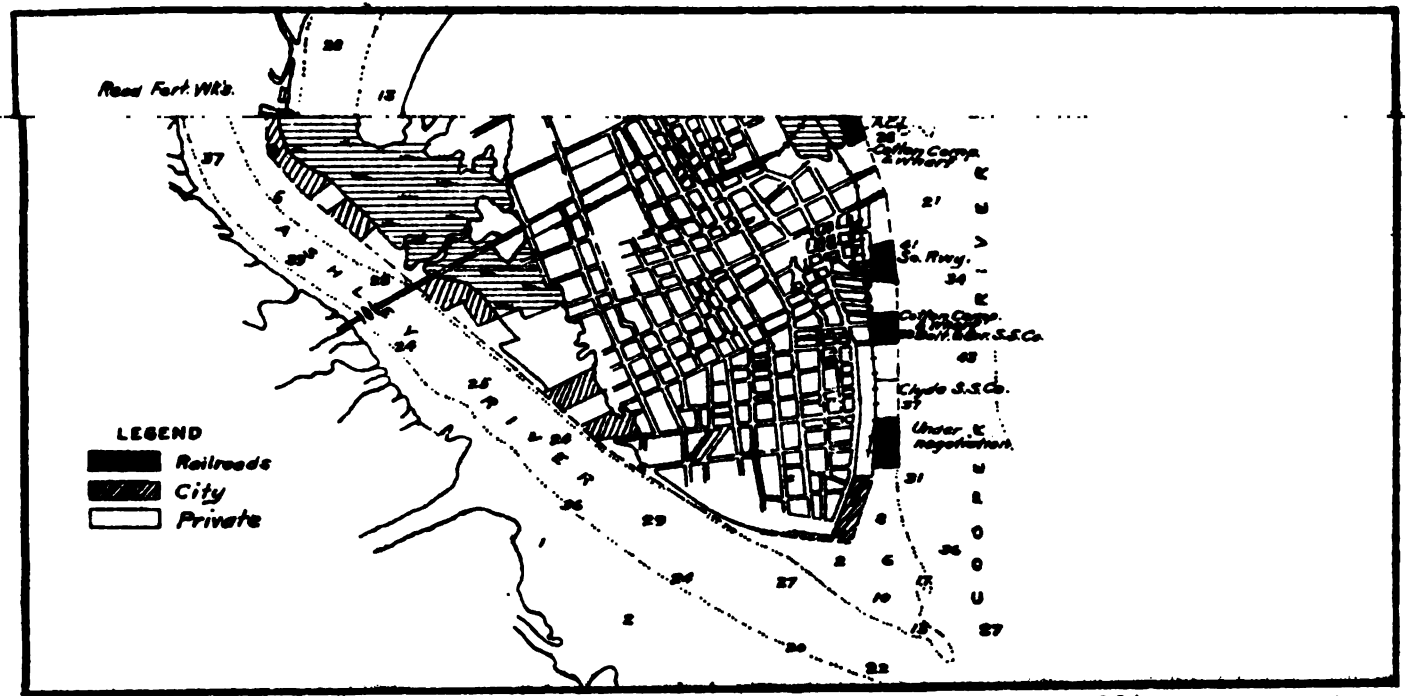
With reference to the tariffs charged on wharfage, this charge is the same at all terminals and the tariff is on file with the Interstate Commerce Commission, being Interstate Commerce Commission No. A-1835. The charges are the same at all south Atlantic and Gulf ports, all the way from Virginia ports to and including New Orleans.

With reference to the coastwise business and the wharfage and transfer charge on certain classes of cargo, there is inclosed a copy of the Clyde Steamship Co.'s tariff 114-B, Interstate Commerce Commission No. 151, which covers the question of storage, terminal, and wharfage charges. Page 3 shows the wharfage and transfer charges on traffic not covered by through rates but destined for interior points. Page 4 shows the wharfage charges on certain shipments originating at Charleston.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

WAR DEPARTMENT

CORPS OF ENGINEERS, U. S. A.



THE NORRIS PETERS CO., WASHINGTON, D. C.

House Doc. No. 226, 63d Cong., 1st Sess.

UNIV. OF MICH.

I. C. C. No. 151.
(Cancels I. C. C. No. 148.)

o supplement to this tariff will be issued except for the purpose of canceling the tariff.

CLYDE STEAMSHIP CO.

FREIGHT TRAFFIC DEPARTMENT.

erminal tariff No. 114-B (cancels terminal tariff No. 114-A), publishing storage, terminal, and wharfage charges applicable at and via Charleston, S. C. (Governed by Southern classification No. 39 (W. R. Powe, agent), I. C. C. No. 17, supplements thereto, and reissues thereof.)

Issued December 17, 1912. Effective January 21, 1913 (except as noted in tem 4-A.) Issued under special permission of the Interstate Commerce Commission No. 28298 of December 14, 1912.

J. B. Denison, traffic manager; H. E. Maynard, assistant traffic manager, 90 Broadway, New York, N. Y.; issued by W. P. Levis, general freight agent. General offices, Pier 36, North River, New York, N. Y. Authority F-522. 200-w+)

I. C. C. No. 151. (Page 2.) Terminal tariff No. 114-B.

FREE TIME.

Item 1.

Seven days' free time, computed from the time shipments are ready for delivery, will be allowed in which to remove freight from the custody of the Clyde Steamship Co. at Charleston, S. C.

STORAGE.

Item 2.

Beginning with the expiration of free time (item No. 1) storage will be assessed on freight remaining in the custody of the Clyde Steamship Co. as follows:

Carloads.—For the first seven days or fractional part thereof, 1¼ cents per 100 pounds; for each succeeding seven days or fractional part thereof, ¼ cent per 100 pounds.

Less than carloads.—Five days and under, 1 cent per 100 pounds, minimum 5 cents; over five days and not exceeding 10 days, 6 cents per 100 pounds; over 10 days and not exceeding 20 days, 8 cents per 100 pounds; over 20 days and not exceeding 30 days, 10 cents per hundred pounds; over 30 days and not exceeding 40 days, 13 cents per 100 pounds; over 40 days and not exceeding 50 days, 15 cents per 100 pounds. Each additional week or fractional part thereof, 1 cent per 100 pounds.

LOADING AND UNLOADING CARS.

Item 3.

The Clyde Steamship Co. will load freight into cars for delivery to warehouses and stores located on railroad tracks at Charleston, S. C., or for delivery to rail connections, and will also unload freight (excepting lumber) from cars at a charge of 15 cents per ton of 2,000 pounds, with a minimum charge of 15 cents. For unloading lumber from cars the charge will be 25 cents per 1,000 feet, board measurement.

I. C. C. No. 151. (Page 3.) Terminal tariff No. 114-B.

Item 4. WHARFAGE AND TRANSFER CHARGES AT CHARLESTON, S. C.

On traffic not covered by through rates the following wharfage and transfer charges will apply at Charleston, S. C., in the construction of through rates on Charleston combination, governed by Southern Classification No. 39 (W. R. Powe, agent), I. C. C. No. 17, supplements thereto and reissues thereof.

	Classes.												
	In cents per hundred pounds.												In cents per barrel.
	1	2	3	4	5	6	A	B	C	D	E	H	F
§Scale No. 1	8	8	8	5	5	5	5	5	5	5	5	5	10
+Scale No. 2	4	4	4	4	4	4	4	4	4	4	4	4	5

Commodities.	Per—	In cents unless otherwise specified. To or from points described in scale. §1.	+2.
Animals (horned), horses, and mules	Animal	†50	†50
Bagging, any quantity	100 pounds	3	3
Cake, oil	2,000 pounds	30	30
Cement	100 pounds	2	2
Fertilizer, C. L.	2,000 pounds	30	30
Fertilizer, L. C. L.	do	36	36
Iron:			
Pig	2,240 pounds	40	40
Scrap	do	40	40
Special, as described in Southern Classification No. 39 (W. R. Powe, agent), I. C. C. No. 17, supplements thereto or reissues thereof.	100 pounds	2	2
Meal, cotton seed	2,000 pounds	30	30
Railway track material, C. L.	2,240 pounds	40	40
Ties, cotton	100 pounds	2	2

† Minimum charge, $1.

§ Scale No. 1. Applicable to traffic consigned to or from points on or east of a line drawn from Chattanooga, Tenn., through Birmingham, Selma, and Montgomery, Ala., to Pensacola, Fla., but not including Pensacola, Fla., nor Charleston, S. C.

+ Scale No. 2. Applicable to traffic to or from points west of the line described in scale No. 1, including Pensacola, Fla., but not including Charleston, S. C.

I. C. C. No. 151. (Page 4.) Terminal tariff No. 114-B.

Item 4-A. WHARFAGE CHARGES AT CHARLESTON, S. C.

The following wharfage charges will be assessed on shipments originating at Charleston, S. C., proper:

Commodities.	Rate in cents.	Per—
‡Cotton	4	Bale.
Cottonseed	25	2,000 pounds.
Fertilizers	25	Do.
Iron:		
Pig	25	2,240 pounds.
Scrap	25	2,000 pounds.
Laths	7	1,000 laths.
Lumber	25	1,000 feet.
Meal, cottonseed	25	2,000 pounds.
Oils:		
Cottonseed	3	Barrel.
Pine	3	Do.
Rosin	3	Do.
Tar	3	Do.
Pitch	3	Do.
Rice, in sacks, barrels, or drums	1	100 pounds.
Rosin	3	Barrel.
Shingles	12½	1,000 shingles.
Spokes	15	1,200 spokes.
Staves:		
Pipe or hogshead	30	1,200 staves.
Barrel or cask	20	Do.
Tar	3	Barrel.
Turpentine	3	Do.

‡ Effective Dec. 21, 1912.
‡ Issued under special permission of the Interstate Commerce Commission No. 23298 of Dec. 14, 1912.

ARCHERS CREEK, S. C.

No work has as yet been done. There is no navigation through the creek, and there are no terminals.

REPORT OF COL. DAN C. KINGMAN, CORPS OF ENGINEERS, OF THE SAVANNAH, GA., DISTRICT.

[The letters (*a*), (*b*), (*c*), and (*d*) indicate subheadings as shown by footnotes.]

SAVANNAH HARBOR, GA.

1. (*a*) The waterway terminal and transfer facilities contiguous to Savannah Harbor are entirely located at the city of Savannah. The distance by river between the lower and upper limits of wharf development is 4 miles; 3.2 miles of the developed wharf frontage lies within the corporate limits of Savannah and eight-tenths of a mile is located above the corporate limits. The width of the river between these limits varies from 500 to 700 feet and the width of the improved channel, which has a depth of 26 feet at mean low water, is 400 feet. The length of developed wharf and terminal property on the city side of the river is 4 miles, and on the Hutchinson Island side is eight-tenths of a mile, making a total of 4.8 miles. The Seaboard Air Line Railway Co. have constructed three slips on Hutchinson Island, the perimeter of which is 1.8 miles. The Central of Georgia Railway Co. have constructed three slips on their property on the city side and the perimeter of same is 1.2 miles. The developed frontage occupied by the Atlantic Coast Line Railway Co. is 1.1 miles and this company owns six-tenths of a mile of river front that, at the present time, is undeveloped. The Seaboard Air Line Railway Co. occupies, on the Hutchinson Island side, seven-tenths of a mile of developed frontage and four-tenths of a mile undeveloped. The Central of Georgia Railway Co. owns 1.2 miles of river frontage, all of which is developed. Of the total developed frontage, viz, 4.8 miles, 3 miles is owned by the railroad companies. The slips developed by the Seaboard Air Line Railway Co. and the Central of Georgia Railway Co. are not included in the frontage mileage. The river frontage owned and occupied by various individual owners is 1.7 miles. The city operates public docks for small craft, which docks have a lineal length of one-tenth of a mile, and owns a frontage of half a mile on the Hutchinson Island side of the river which is undeveloped; also, one-tenth of a mile, known as the waterworks tract, above the corporate limits.

2. The last session of Congress provided for an improvement that will so deepen the river from the upper limits of the present wharf development to a point a mile and a half above that commercial development can be made on one side of the river above the city for this length. Up to the present time no commercial development could be made on this portion of the waterway, due to lack of depth in the river opposite same. To secure the adoption of a project for extending the ship channel upstream, the riparian owners proposed to give to the city, for a public wharf, a tract of land fronting

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(a) General location and description.

400 feet on the river and 1,000 feet deep, and the adoption of this project has been made conditional upon the city's accepting this tract of land and properly improving it. Arrangements for doing this have been made.

3. With the exception of one small concrete wharf owned by a private party, all wharves are of pile and wooden construction, with the elevation of the flooring of same varying from four to seven feet above mean high-water plane. A portion of wharf frontage is especially designed for lumber-carrying vessels. Extensive warehouses, especially designed for the storing of cotton, are located on the wharves owned by each of the railroads and three hydraulic cotton presses are in operation. Extensive rosin sheds are located adjacent to the wharf frontage and turpentine and oil tanks have pipe line connections from same to distributing and receiving points on the wharves. The method of handling freight is almost entirely by hand labor, but in one or two cases electric conveyances have been constructed and a more extensive installation of same is now under consideration by the Seaboard Air Line Railway Co. and the Ocean Steamship Co., who use a portion of the Central of Georgia Railway terminals. Regular lines of steamships are established between the port and New York, Boston, Baltimore, Philadelphia, and Jacksonville, comprising a total of 16 steamers. Regular freight service is also maintained to the principal ports of the United Kingdom and the Continent of Europe and, in addition, there is a fleet of American coastwise sailing vessels. There is also a regular steamboat service on the Savannah River to August, Ga., and a large number of small steamers ply between the city and adjacent points on the inland waters. The wharves and terminals are mainly used for handling the export and import business. The chief articles of export are cotton, lumber, and naval stores, of which shipments for the calendar year 1911 were as follows: Of cotton 1,436,101 bales, of lumber 136,000,000 feet, of naval stores 194,000 barrels of turpentine and 682,000 barrels of rosin. The total amount of freight received and shipped out of the port during the calendar year 1911 was practically 3,000,000 tons, valued at $247,000,000. The amount and value of exports and local business is shown by the following tabulation:

Calendar year 1911.

	Received.		Shipped.	
	Short tons.	Value.	Short tons.	Value.
Foreign	576,607	$6,279,462	574,867	$82,[illegible]
Coastwise steamships	531,665	75,496,430	501,833	71,[illegible]
Coastwise sailing vessels	229,410	2,492,625	275,285	2,[illegible]
Inland waterways	69,750	3,304,500	69,750	3,[illegible]
Bunker coal	.....	.....	125,647	[illegible]
Total	1,407,432	87,573,017	1,547,382	159,[illegible]

4. Besides the extensive export and import business, the wharves and terminals are used to some extent in connection with factory sites. They are at this time efficient for transshipment business, but there is a lack of wharf space for factory sites, but this will be overcome by the extension of the ship channel now under progress, which will provide for the development of 2 miles of river frontage.

5. In order to ascertain whether the terminals owned by railroads and by individual owners are open to use by all water carriers and, if so, on what terms, letters of inquiry were sent to each of the railroads and to each owner of private property. Replies were received from practically all, and Appendix A gives briefly the replies to the questions asked. A review of the replies indicates that there is sufficient terminal and wharf facilities open for the general use of the public upon reasonable and equal terms.

6. The Seaboard Air Line Railway Co. have constructed a bridge across the Savannah River about 2 miles above the city, and rail connection over this bridge is made between their main line and the terminals operated by them on Hutchinson Island.

7. (*b*) Traffic arrangement is made whereby any of the other roads entering the city can have their cars taken across the river by the Seaboard Air Line Railway Co. to their wharves.

8. The Central of Georgia Railway operates a line of track along the city front adjacent to the various wharves from the Central of Georgia Railway terminals to the Atlantic Coast Line Railroad terminals below, and there is a traffic agreement whereby local or through freight is transferred to the various warehouses and wharves bordering the river front.

9. There is a contract between the railroads and the water transportation companies for the interchange of traffic by prorating where it is desired to carry freight partly by rail and partly by water to its destination. The method of carrying on this contract is dwelt upon in the answers furnished by the transportation companies to whom questions were sent.

10. (*c*) There is no highway connecting the city and the Seaboard Air Line terminals on Hutchinson Island. A small ferryboat makes regular trips between the city and the terminals for transferring employees and other passengers, and there are lighterage and transfer companies which transfer freight from one side of the river to the other. All of the wharves bordering the city front have adequate connection with the highways, and those located above the corporate limits have connection with the highways.

11. (*d*) Through traffic passing through the port of Savannah to and from the interior will always, as at present, be handled over the wharves of the railways and steamship lines. Savannah's local water traffic—that is, traffic originating at Savannah for shipment and traffic destined to Savannah for consumption—is small compared with the immense volume of through traffic. This local traffic is now adequately and satisfactorily taken care of on the wharves of the transportation companies and private individuals. The volume of this local traffic is, at the present time, not large enough to justify the conclusion that municipally owned wharves could be operated at this time at a profit. However, the city owns but a very limited amount of water frontage, and with its population increasing rapidly and with a through commerce also increasing from year to year it would appear that the city of Savannah should at this time obtain control of water frontage that will be adequate for a long period of

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

years, even if it is forced to carry same indefinitely without income yielding an adequate return upon the investment.

12. There is transmitted a map, in four sheets,[1] which shows the location and ownership of all wharf property, developed and undeveloped, between Fort Jackson, below the lower limits of the city, and Kings Island, above the city, a distance of 6 miles.

APPENDIX A.

1. Copy of circular letter sent to Atlantic Coast Line Railroad Co., Seaboard Air Line Railway Co., Central of Georgia Railway Co., Merchants & Miners Transportation Co., and Beaufort & Savannah Line.
2. Replies to questions asked in letter to railroad and steamship companies
3. Copy of circular letter sent to individual owners of wharf property.
4. Replies to questions asked in letter to individual owners.

Copy of Circular Letter Sent to Atlantic Coast Line Co., Seaboard Air Line Co., Central of Georgia Railway Co., Merchants & Miners Transportation Co., and Beaufort & Savannah Line.

The Chief of Engineers has called for a report concerning waterway and terminal facilities contiguous to Savannah Harbor, and in order to furnish the data required it is necessary to obtain certain information from the owners or lessees of the water frontage in the harbor, and answers to the questions enumerated below will furnish the information desired.

First. Do you in fact own or control any water front in the harbor of Savannah?

Second. Are there wharves or slips erected upon it; if so, briefly describe the character of same and for what they are used, and what is the depth of water alongside?

Third. Is it used by the public generally or for your own business?

Fourth. Please state the extent and method of their use by water carriers and whether they are open to use by all water carriers on equal terms.

Fifth. If such is the case, please state upon what terms and conditions the property is open for public use.

Sixth. Is there physical connection between your terminal and railroad or railroads serving this territory or municipality?

Seventh. Does there exist between you and any railroad or railroads a mutual contract for interchange of traffic by prorating as to such long distance traffic as may be desired to be carried partly by rail and partly by water to its destination?

Eighth. Are there improved and adequate highways constructed to your terminals or wharves?

Answers to the above questions will aid in carrying out the instructions of the Chief of Engineers, and an early reply will be appreciated.

Replies to Questions Asked in a Letter to Railroad and Steamship Companies.

BEAUFORT & SAVANNAH LINE.

First. Three hundred feet between Abercorn and Lincoln Streets.
Second. Used for storing coal and handling our steamboat business.
Third. Own business.
Fourth. Seldom rent to others.
Fifth. ———
Sixth. Yes.
Seventh. No.
Eighth. Yes.

CENTRAL OF GEORGIA RAILWAY CO.

First. Control by lease from Ocean Steamship Co. approximately 1 mile of river frontage, with wharves of wooden construction on all, and three slips with following dimensions: 200 by 840, 200 by 800, and 225 by 900. Average depth, 21 feet alongside at mean low water.

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[1] Sheet 4 not printed.

Second. See above.

Third. Not used by local craft generally, but take care of business received and forwarded via the Central of Georgia Railway and for use by the Ocean Steamship Co. and the Merchants and Miners Transportation Co. and the Southern Railway.

Fourth. Answered by No. 3.

Fifth. No dockage charges, the only revenue being wharfage charges.

Sixth. Yes.

Seventh. Have no formal contract covering the interchange of traffic and prorating arrangements, but by practice of long standing a regular interchange is had, and prorating arrangements with domestic carriers, subject to Interstate Commerce Commission, are in effect by mutual arrangement and are changed from time to time as the traffic requires.

Eighth. Adequate highways to the berths of the Ocean Steamship Co. and the Merchants & Miners Transportation Co., but, generally speaking, none to those used by tramp ships.

SEABOARD AIR LINE RAILWAY CO.

First. Yes.

Second. Three slips—2,000 feet, 1,368 feet, and 1,781 feet, respectively, in length—with wharves on both sides, and we have a wharf frontage on the river, in addition, improved, amounting to 1,643 feet, making a total of 11,941 feet of wharf front improved. A depth of 22 feet at mean low water is maintained.

Third. The terminals are used primarily in connection with the operation of the Seaboard Air Line Railway.

Fourth. There are assigned berths to several regular steamship lines. We, however, have regular published wharfage, storage, and handling rates covering public use.

Fifth. The terms and conditions are stated in tariffs on file with the Interstate Commerce Commission.

Sixth. Yes.

Seventh. Through bills of lading are issued in connection with water carriers.

Eighth. The terminals are located on an island and are reached only by railroad connections and lighters.

ATLANTIC COAST LINE RAILWAY CO.

First. Yes.

Second. Wharves parallel with the river with about 19 feet alongside.

Third. By the public generally and our traffic.

Fourth. Used by all water carriers on equal terms.

Fifth. Wharfage charges are made in case a vessel is not taking or discharging cargo, a dockage charge of $1.50 per day.

Sixth. Yes.

Seventh. Have through traffic arrangements and regular published percentages and divisions.

Eighth. Yes.

MERCHANTS & MINERS TRANSPORTATION CO.

First. No. (It is understood that wharf is leased from Central of Georgia Railway Co.)

Second. Yes. Open sheds are erected full length of the property, with car tracks alongside. Along street line closed warehouses are constructed. Depth of water alongside about 26 feet.

Third. For company's business and leased to various firms to be used in distributing their goods.

Fourth. Terminals are not used by any other water carrier.

Fifth. Answered by question 4.

Sixth. Yes.

Seventh. This company handles through traffic, in both directions, via Savannah, in connection with railroads centering at that point, which traffic is handled on through rates which are divided on agreed per cents.

Eighth. There are paved streets from these terminals to the center of the city of Savannah.

COPY OF CIRCULAR LETTER SENT TO INDIVIDUAL OWNERS OF WHARF PROPERTY.

The Chief of Engineers has called for a report concerning waterway and terminal facilities contiguous to Savannah Harbor, and in order to furnish the data required it is necessary to obtain certain information from the owners or

lessees of the water frontage in the harbor, and answers to the questions enumerated below will furnish the information desired:

First. Do you in fact own or control any water front in the harbor of Savannah?

Second. Is there a wharf or slip erected upon it? If so, briefly describe the character of same and for what is it used, and what is the depth of water alongside.

Third. Is it used by the public generally or for your own business?

Fourth. Is your property open to use by all water carriers on equal terms, and if so, upon what terms and conditions of use?

Fifth. Is there physical connection between your property and any railroad or railroads?

Sixth. Are there improved and adequate highways constructed so as to connect with your property?

Kindly furnish me with the information called for at your earliest convenience.

Replies to Questions Asked in Letter to Individual Owners.

JNO. BOURKE & SONS.

First. Yes.
Second. Wharf and Marine Railway.
Third. Own business.
Fourth. Property is used while making repairs to vessels.
Fifth. Yes.
Sixth. Yes.

PIERPONT MANUFACTURING CO.

First. Four hundred feet.
Second. Wooden wharf with 12 to 16 feet alongside.
Third. Own business but allow vessels at adjoining wharves to overlap.
Fourth. No.
Fifth. Yes.
Sixth. Yes.

TAGGART & CO.

First. Yes.
Second. Wharf.
Third. Private business.
Fourth. ———.
Fifth. Yes.
Sixth. Yes.

UNITED HYDRAULIC COTTON PRESS CO.

First. Six hundred and twenty-five feet.
Second. Six hundred and twenty-five by one hundred and fifty feet.
Third. Both.
Fourth. Usual terms.
Fifth. Yes.
Sixth. Yes.

SAVANNAH LIGHTERAGE & TRANSFER CO.

First. Two hundred and twelve feet.
Second. Wharf in bad repair with 8 or 9 feet of water alongside.
Third. Used as marine railway and for repairs to lighters, etc.
Fourth. No.
Fifth. ———.
Sixth. No.

SAVANNAH ELECTRIC CO.

First. Eight hundred and thirty-six feet.
Second. Part for own use and part leased.
Third. As above.
Fourth. As above.
Fifth. Yes.
Sixth. Yes.

VIRGINIA-CAROLINA CHEMICAL CO.

First. Yes; just outside of city limits.
Second. Good wharf, 14 feet alongside, low water.
Third. Own business.
Fourth. Own use only.
Fifth. Yes.
Sixth. Yes.

GEORGE W. LOWDEN.

First. Wharf from Barnard to Jefferson Streets.
Second. Slip at each end of wharf, also shed; all leased.
Third. Used by our lessees and ourselves.
Fourth. At option of lessees.
Fifth. Yes.
Sixth. Yes.

KEHOE'S IRON WORKS.

First. Three hundred and thirty feet.
Second. Good wharf and marine railway dry dock with capacity of 1,200 tons.
Third. Used by patrons of iron works and dry docks.
Fourth. Not open to all water carriers.
Fifth. Yes.
Sixth. Yes.

SOUTHERN COTTON OIL CO.

First. Yes.
Second. Small; 18 feet at high tide.
Third. Own business.
Fourth. Private use.
Fifth. Yes.
Sixth. Yes.

HILTON & DODGE LUMBER CO.

First. Control wharves in front of mill property under long lease.
Second. Wharves.
Third. For own business exclusively.
Fourth. ———.
Fifth. Yes.
Sixth. Yes.

MR. S. HERMAN.

First. Yes.
Second. Wharf used for coal business; 20 feet alongside at low water.
Third. Own business.
Fourth. Reserve right to prohibit public use, but are willing to accommodate anyone if can do so without inconvenience to ourselves.
Fifth. Yes.
Sixth. Yes.

ESTATE OF H. P. SMART.

First. Own wharves leased to Hilton & Dodge Lumber Co. and about one-half mile undeveloped property on Hutchinson Island.
Second. See above.
Third. See above.
Fourth. ———.
Fifth. Yes.
Sixth. Yes; on city side.

STANDARD OIL CO.

First. Yes; 180 feet.
Second. Wharf with wooden bulkhead; depth alongside 26 to 27 feet.
Third. Own use and when not in use rented to Propeller Tow Boat Co.
Fourth. Yes; when not rented or in use by ourselves.
Fifth. Yes.
Sixth. Yes.

STANDARD FUEL SUPPLY CO.

First. Yes.
Second. All improved with wharves, some of wood and some of reenforced concrete, and used for our own business.
Third. Answered by No. 2.
Fourth. Question No. 4 is not understood by us.
Fifth. Yes.
Sixth. Yes; but the highways are in poor condition.

TELFAIR HOSPITAL.

First. One hundred and fifty feet.
Second. Wharf.
Third. Usually leased to private parties, but not now in use.
Fourth. Not open.
Fifth. Yes.
Sixth. Yes.

MR. HENRY BLUN.

First. Yes.
Second. Wharf rented to Standard Fuel Supply Co.
Third. ———.
Fourth. ———.
Fifth. Yes.
Sixth. Yes.

ESTATE OF G. W. T. DE RENNE.

First. Wharf lying between Drayton and Abercorn Streets.
Second. Wooden wharf.
Third. Under lease to Emanual & Co.
Fourth. Yes.
Fifth. Yes.
Sixth. Yes.

MRS. SARAH C. JONES.

First. Yes.
Second. About 150 feet of wharf, with 20 feet of water alongside.
Third. Leased to R. S. Salas for a term of years.
Fourth. Referred to Mr. R. S. Salas.
Fifth. Yes.
Sixth. Yes.

C. M. GILBERT & CO.

First. Yes.
Second. Wharf and warehouse leased to Seaboard Air Line Railway for the delivery of city freight.
Third. See above.
Fourth. See above.
Fifth. Yes.
Sixth. Yes.

UNION SOCIETY.

First. Yes.
Second. Ninety feet wharf frontage, with about 18 feet at low water alongside.
Third. Public generally, with consent of lessee.
Fourth. Used by river boats; terms must be satisfactory to lessee.
Fifth. Yes.
Sixth. Yes.

ESTATE OF C. A. LAMAR.

First. Three hundred and seventy feet.
Second. Wharf with 12 to 20 feet at low water alongside.
Third. At usual port charges.
Fourth. See above.
Fifth. Yes.
Sixth. Yes.

UNIV.
OF
MICH.

COWHEAD RIVER, GA.

1. (*a*) This is a new work, provided for by the river and harbor act approved July 25, 1912. Funds are available for the proposed improvement, but at this time no work has been done. The improvement to be made consists in opening up a navigable channel between Lazaretto Creek and Tybee Creek, which waterways are located south of the mouth of Savannah River. When this waterway is developed it will afford a water route from Savannah to Tybee Island. The business that will be carried on will be entirely of a local nature. At this time no wharf or terminal exists on Tybee Island adjacent to the improvement, but it is anticipated that when the waterway is opened a public wharf will be constructed by the authorities of the town of Tybee, to be used by the public in general, and that the wharf so constructed will be used by all water carriers on equal terms.

2. (*b*) No physical connection will exist between the proposed wharf and the railroad on Tybee Island, and no through freight is expected to be carried over same, so that there will be no occasion for a contract for interchange of traffic.

3. (*c*) The proposed wharf will be connected with a highway leading from the main avenues on the island.

4. (*d*) The expected business to be carried on is limited and entirely of a local nature, so that one wharf of suitable size located at the most convenient point at Tybee Island, on Tybee Creek, will answer all requirements.

SAVANNAH RIVER BELOW AUGUSTA, GA.

1. (*a*) The only water terminals and wharves located on this waterway are at Augusta and Savannah, the termini of the waterway. While three railroads cross the Savannah River between the two cities, there are no facilities for the transferring of freight at these crossing points. Along the river there are numerous landings, but no wharves are constructed and only small sheds for the storing of freight are in use. The length of the waterway in question is 202 miles. The city of Augusta owns and maintains a wharf and warehouse for the use of river boats. The freight from the boat to the warehouse is handled by an endless-chain elevator, so placed that same can be raised or lowered to meet the changing height of water in the river. At Savannah there are wharves and warehouses for receiving and shipping freight that is carried over this waterway.

2. During the year 1911 there were four steamers engaged in river traffic between Savannah and Augusta, which carried a total of 39,500 short tons of freight, valued at $5,609,000. During the same year it was estimated that 25,000,000 feet b. m. of timber, valued at $250,000, was rafted down the river.

3. The wharves at Augusta are used by all river boats, regardless of ownership, the city charging a small wharfage fee for local freight handled at the wharf and warehouse, but through freight is entered

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

without charge of any kind. There are ample wharves at Savannah for public use with fixed rates for wharfage and dockage charges. While the present wharf and warehouse at Augusta are efficient for the freight carried at the present time, it is expected that more extensive facilities will be required in the future, and the city of Augusta anticipates constructing further wharves and warehouses as required. At Savannah there is ample provision made for handling all freight.

4. (*b*) At Augusta there is no physical connection between the wharf and railways; at Savannah there is. It is understood that the transportation company have a mutual contract for interchange of traffic at the Savannah end with railroads and that there is a prorating charge for such long-distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

5. (*c*) Adequate highways are constructed both at Augusta and Savannah to the terminals.

6. (*d*) It is the opinion that adequate terminals exist for the traffic carried on at the present time.

SAVANNAH RIVER AT AUGUSTA, GA.

1. The improvement of Savannah River at Augusta, Ga., consists of revetting the river bank along a portion of the city front of Augusta to prevent caving and a consequent deterioration of the channel below and the loss of valuable ground to the city. At this time there is no navigation opposite the portion of the river coming under this project, so that there is no necessity for any terminals or wharves. The receipts and shipments of freight and terminal and wharf facilities for same at Augusta are considered in the report upon this question for Savannah River below Augusta.

SAVANNAH RIVER ABOVE AUGUSTA, GA.

1. This waterway extends from the locks, 7 miles above the city of Augusta, to Petersburg, a distance of 48 miles above the locks. There is no established line of boats upon the waterway on account of the difficulties in carrying on navigation. The freight carried upon the river consists of cotton, hay, fertilizer, and general merchandise and is transported in flat boats or pole boats belonging to private parties. There are no wharves or terminals along the waterway, the freight being delivered at numerous landings along the river.

2. The nature of the commerce carried along this waterway is such that there is no necessity for the construction or maintenance of terminals or wharves.

DARIEN HARBOR, GA.

1. (*a*) Darien Harbor has but a short length of river frontage at the city proper located on the Darien River, which is one of the mouths

(*a*) General condition and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

or outlets of the Altamaha River. In addition to these docks, there exists one short dock at Lower Bluff for the loading of sawn lumber almost exclusively. All wharves are wooden structures. The docks in front of the river are made use of principally by tugboats and one daily steamer plying between this port and Brunswick by way of the inside route.

2. Such wharves as exist here are open to the use of all waterway transportation lines that might possibly touch here.

3. (*b*) Physical connection exists between the daily steamboat here to this port, and the railroad entering same, and traffic arrangements under published rates exist.

4. (*c*) Adequate highways exist leading to these docks in front of the city. None exist at Lower Bluff Mill, but none are needed.

5. (*d*) No extension of wharf facilities is needed under present commerce.

For information concerning this harbor, see letter of J. B. Wright, general manager of the Brunswick, St. Simon's & Darien Steamboat Co., following report on Brunswick Harbor, Ga.

SAPELO HARBOR, GA.

1. (*a*) The dock facilities here are very meager, most of the shipping being in the nature of large sawn timber and round timber, carried to these points by tugs, in raft form, and loaded there on account of the deep water available over Sapelo Bar. Both the wharves in Front River are owned by and used exclusively by lumber companies, and have no direct connection with railroad companies.

2. (*b*) None exist.

3. (*c*) No highways to these docks exist.

4. (*d*) Owing to the isolated position of these docks, no railroad connection is possible, and therefore no necessity for anything more in the way of docks, except such as are needed for mooring purposes.

ALTAMAHA RIVER, GA.

1. (*a*) The Altamaha River is crossed by the Georgia & Florida Railroad bridge at mileage 136, the Atlantic Coast Line Railway at mileage 19, and the Seaboard Air Line at mileage 23½. At only one of these railroad crossings are there any transfer facilities for the exchange of freight between railroads and steamboats, namely, at Doctortown. There exists at this point a freight elevator for handling commodities from the wharf up to storage sheds on a grade with the railroad tracks.

2. (*b*) While no answer was received to the request addressed to the Altamaha Navigation Co., concerning their transfer agreements, yet freight has been shipped from Brunswick to points upon the river,

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

making use of this transfer at Doctortown, and it is understood that a traffic arrangement exists between the Altamaha Navigation Co. and the Atlantic Coast Line Railway.

3. (*c*) Numerous landings exist along the river, from which highways lead back to the adjacent country; but, owing to the comparatively small amount of shipments, only in a few instances are these highways of a very improved nature.

4. (*d*) See paragraph 13.

OCONEE RIVER, GA.

5. (*a*) The Oconee River is crossed by three railroads within the stretch of river under improvement, namely, from the Forks to Milledgeville. The Central of Georgia crosses it at mileage 107; the Wrightsville & Tennille and Central of Georgia cross it at Dublin, mileage 78, and the Seaboard Air Line Railway at mileage 29, near Ochwalkee, Ga., but transfer facilities are found only at Dublin, where there exists an inclined railway for the transfer of freight from steamboats to railroads.

6. (*b*) Traffic arrangements for exchange of freight exist between the Wrightsville & Tennille Railway and the Oconee River Steamboat Co. only at Dublin, Ga. There existed, formerly, similar connections between this company and the Central of Georgia Railway at Oconee Station, and the Seaboard Air Line Railway at Ochwalkee; but, owing to the gradual decline of water transportation, said to have been caused by the condition of the river, these exchange points have been practically abandoned, except for the receipt and delivery of package freight as at other landings along the river.

7. (*c*) Numerous other landings exist along the river, access to which is had by county roads, and in the stretch of river for 30 miles above Dublin and 30 below it considerable exchange of freight is accomplished. There should be, with the further development of the river, exchange points established at Milledgeville, reestablished at Oconee Station and Ochwalkee.

8. (*d*) See paragraph 13.

OCMULGEE RIVER, GA.

9. (*a*) The Ocmulgee River is crossed by railroads at the following points: Macon, Ga., mileage 205, Central of Georgia Railway and the Macon, Dublin & Savannah Railroad; mileage 195, Southern Railway; Hawkinsville, Ga., mileage 135, Wrightsville & Tennille and Southern Railways; Abbeville, Ga., mileage 96, Seaboard Air Line Railway; Lumber City, Ga., mileage 12, Southern Railway. At Macon, Ga., there exists ample warehouse room and elevated tracks for the storage and transfer of freight from steamboat to railroad, with a spur track from the warehouse to railroad. The wharf frontage is owned by the city of Macon. At Hawkinsville no mechanical contrivances exist for the transfer of freight between the railroads and steamboat line, the transfer being made here by drays

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

At Abbeville the same conditions exist between the boat line and the Seaboard Air Line Railway, with the addition of a warehouse maintained by the railway company. At Lumber City the Southern Railway maintains a warehouse with suitable elevating machinery for the transfer of freight. At Barrows Bluff, mileage 45, the Georgia & Florida Railway have a spur track out to the river, where a warehouse is maintained by the railway company for the storage of freight. At Mosquito Bluff, mileage 32, the Ocmulgee Lumber Co.'s tramway touches the river, with an exchange of freight with the steamboat company.

10. Numerous landings also exist along the river between these main transfer points, from which highways lead to the adjacent country.

11. (*b*) Freight transfer arrangements existed at Macon during the operation of the boats of the Macon & Brunswick Navigation Co., but since the discontinuation of this service no use has been made of these arrangements. From Hawkinsville to Lumber City traffic arrangements exist between the railroads and the Wilcox & Phillips Boat Line.

12. (*c*) Highways exist at all landings along the river, but it is doubtful if it can be said that these highways are improved to any great extent. It may be stated that for the limited amount of detached commerce that they are adequate at present time.

13. (*d*) Apparently there is a cordial relation existing between the steamboat companies and the railroads, and, so far as is known, no discrimination to the detriment of the steamboat transportation exists. Adequate terminal and transfer facilities are maintained for the limited amount of package freight now moving. In all, there are in the neighborhood of 150 landings upon the three rivers forming this system for the handling of freight. Should it ever be possible to place the total length of the river in such condition as to enable a through line of steamboats to navigate from Macon to Brunswick, it is probable that some difficulties along this line may be encountered, though the general tone of the railroad officials toward such development appears to be favorable, and, no doubt, terminal facilities will be built where needed.

There is appended hereto extracts from the various letters received in connection with this report.

Oconee Steamboat Co., Dublin, Ga., writes under date of September 7, 1912:

(*a*) The only water terminal which we have that has a physical connection with a railway is at this point. We formerly had terminals and physical connections with the railroads at Oconee on the Central Railroad, and Ochwalkee on the Seaboard Air Line, but owing to the condition of the river and the gradual decline of water transportation caused thereby, these terminals have been abandoned and are no longer in use except for delivering and receiving package freight as at other landings along the river. With the deepening of the river we could very profitably use terminals and physical connections at each of the points named, and also at Milledgeville.

(*b*) The terminal and wharfage provided here are owned by the Wrightsville & Tenille Railroad, which is our preferred connection, they receiving from and delivering to us 95 per cent of the freight handled at this point. This terminal is used by other lines when desired. At this time there is no other water

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

transportation company operating here, and for that reason we are the only users.

(c) We handle freight to and from about 60 landings, and in so far as I am advised, all have excellent highway connections.

(d) I would like very much to see water terminals with railway connections at Milledgeville, Oconee, and Ochwalkee. With these added our terminal facilities would be adequate in the territory in which we operate.

People in this section have noted with a great deal of interest the agitation now going on for the deepening of the waterways in this section. All feel that great good must come out of this movement as our country is now developing very fast, and it can be but a matter of a few years before a very large per cent of our commerce must, or should be, handled on our rivers.

I am glad to state that the business of this company showed a very marked increase for the past year, ending June 30, over that of the previous year.

M. M. MOBLEY,
General Manager.

Cox & Chappell, Macon, Ga., write under date of August 21, 1912:

Question A.—Will say that the terminal facilities at Macon are very adequate. consists of a wharf which is owned by the city of Macon, a large commodious brick warehouse owned by the Macon & Brunswick Navigation Co., conveniently arranged for loading and unloading cargoes. These terminals are open to all water carriers without any charges.

Question B.—The physical conditions existing between these terminals and the railroads serving this territory are very satisfactory. Within a very short time we will have a railroad track running down to the river bank, alongside of the river warehouse, which makes it very convenient for transferring from boats to the railroad. The railroads and the navigation company are on good terms, and interchange freights with satisfactory arrangements.

Question C.—Adequate improvements of the highways to the water terminals here have been provided. They are all easily approached by teams.

Question D.—The above answers apply to the water terminals at Macon. I am not able to give you much information in regard to the terminals at other places on the Ocmulgee River. At Hawkinsville, however, the team approach to the river is good, but there is no railroad track connected with that wharf. At Abbeville the team approach is good, and they also have railroad tracks to the wharf. At Lumber City the team approach is good, and railroad at the wharf. For additional information I would suggest that you write to the Altamaha Navigation Co. at Baxley, Ga., who can give you full information about different landings. You might write to the Chamber of Commerce at Dublin for information in regard to the Oconee River.

A. E. CHAPPELL, *President.*

Wilcox & Phillips Boat Line, Lumber City, Ga., write under date of August 21, 1912:

(a) Our terminals are Ocmulgee, Abbeville, and Hawkinsville. At Ocmulgee a wharf and warehouse are maintained by the Southern Railway, with which we connect at that point, and the same facilities are kept up at Abbeville by the Seaboard Air Line Railway, both of which are adequate to the needs of the business. At Hawkinsville and Barrows Bluff there are no warehouse and wharves and no track running to the river landing, and at the two latter places the facilities should be improved. The terminals are open to all water carriers so far as we know.

(b) The connections at Ocmulgee and Abbeville are satisfactory as they exist, but at Hawkinsville there is no track connection with the boat landing. There is an agreement whereby traffic is handled from long-distance points on a prorating basis.

(c) No; the highways are not improved as they should be.

(d) There is not any necessity of any more terminals being located on our line.

D. W. PHILLIPS,
Secretary and Treasurer.

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.
(d) Necessity for water terminals.

BRUNSWICK HARBOR, GA.

(A) LOCATION, DESCRIPTION, ETC.

1. (*a*) Brunswick Harbor has an improved water front of about 3 miles, located on the east side of East River and Academy Creek, including a short wharf, 2,000 feet in length, belonging to the Southern Railway, situated on the east shore of Turtle River. In addition to these wharves, shipping to a limited extent is also carried on from small wharves and landings in Terrys Creek on the northeast side of the city of Brunswick, totaling 1,300 feet. This frontage is made use of by railroad companies, municipal docks, and some private ownerships, the railroads owning 10,700 feet, the greater portion of which is leased to forwarding agents and used for the loading of lumber. Private docks under private ownerships, leased in some instances, take in 5,300 feet.

2. The city maintains two public docks at the foot of two separate streets, and owns the foot of all her streets, though she has control only over four of them, totaling 255 feet, the rest having been leased to individuals or corporations.

3. The major portion of the handling of the freight is done by hand and the use of hand trucks, in conjunction with steam hoists on steam vessels and steam hoisters on loading lighters, all the wharves being so constructed with depressed slips as to facilitate such loading at different stages of the tide.

4. All of the wharves are constructed of wood on a wooden pile foundation, with the exception of the terminals of the Brunswick Steamship Co., which are on concrete pile foundations with concrete bulkheads. The controlling bulkheads at the mouth of their shipping basin are of creosote piling.

5. So far as can be learned, all this water front is open to the general public for use under a fixed wharfage charge for the loading and unloading of freight, with one exception, namely, the Atlantic Coast Line Railway, which reserves the right to bar any steamboat lines competing with their interests.

6. (*b*) Concerning the physical connection existing between the waterway terminals and the railroads serving the waterway transportation lines, there appears to be, from the information submitted, transfer agreements between the waterway lines terminating here and some one of the railroads, and in most instances contracts for the interchange of traffic prorating under some agreement such commerce as is carried partly by rail and partly by water.

7. (*c*) In nearly all instances, without exception, the railroads parallel the water front and spur tracks serve all the separate wharves. The Atlantic Coast Line Railway parallels the East River frontage with spurs to the docks, and has traffic arrangements with all roads. The Southern Railway has a spur out to the Turtle River Docks, and the Atlanta, Birmingham & Atlantic Railroad has a spur out to the factories on Terrys Creek.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.

8. (*d*) In connection with terminal and transfer facilities of Brunswick Harbor, it might be relevant to state that during the last legislature Brunswick's Board of Trade obtained the change of her charter in such a way as to allow her to acquire either by purchase or condemnation proceedings frontage of property along her river front, for the owning, construction, maintenance, and rental of such municipal docks as might be deemed necessary for the future development of the city, and there are now steps under way for the acquisition of additional property, besides the foot of her various streets.

Appended hereto are extracts from various letters received in connection with this report.

Atlantic Coast Line Railroad Co., Savannah, Ga., write, under date of October 21, 1912:

(*a*) Located on East River and Academy Creek, 2,800 feet of improved docks for use in handling lumber, crossties, and such other like commodities. Built to a height of approximately 4 feet above normal tide. About 2,000 feet of unimproved water front. These terminals are open to all rail carriers and to such water carriers as are not in competition with the Atlantic Coast Line Railroad, subject to wharfage rates lawfully published and on file with the Interstate Commerce Commission. The dockage charges are made only when vessels do not take cargoes.

(*b*) There is a physical connection between the water terminals of the Atlantic Coast Line Railroad and all railroads entering and serving the port of Brunswick. We have traffic arrangements between the steamer lines operating through the port of Brunswick, and have regularly published percentages and divisions from eastern cities to interior eastern points via Brunswick, constructed on a basis mutually agreeable to the water and rail carriers.

(*c*) Improved and adequate highways have been constructed to each water terminal.

C. McD. Davis,
General Freight Agent.

Brunswick Steamship Co., Brunswick, Ga., write under date of August 29, 1912:

(*a*) The Brunswick Steamship Co. terminals are located in the southern portion of Brunswick, north of Oglethorpe Bay, starting at the American Tie & Timber Co.'s dock, running in a southerly direction to property of the Southern Railway, and from the water front back to what is known as the Boulevarde. There are four warehouses on this property 58 by 400 feet each; one open lumber pier, 140 by 735 feet; one covered shed, 48 by 372 feet; one covered platform, 28 by 353 feet; one covered shed, 48 by 180 feet. There is now under construction a cotton shed 150 by 800 feet. There is also located on the terminals an electric light, waterworks, and ice plant. Extensive dredging is also being done in Timber Basin and around piers; also considerable bulk heading. When completed 23 feet of water will be maintained. The terminals are entirely efficient for the business that has been handled. They are not public wharves, but all lines now using same do so on equal terms. They are now being used by the Clyde Steamship Co., operating between New York and Brunswick; the Brunswick, St. Simons & Darien Steamboat Co., between Brunswick and Darien; the Brunswick & Florida Steamboat Co., between Brunswick, Jekyl Island, Cumberland, and Fernandina; the steamer *Atlantic* operating between Brunswick and Satilla River points. These docks were used by the Macon & Brunswick Navigation Co. when they were in existence; this line operated between Brunswick and Macon and intermediate points. There are no berthing charges whatever for vessels using these docks; charges being collected on basis of cargo moving.

(*b*) Physical connection exists between the terminals and all rail lines operating from Brunswick. I am unable to advise you as to whether the

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

exists between any of the water carriers using our terminals and the railroads from Brunswick a mutual contract for interchange of traffic by prorating as to such long distance traffic as may be desired to be carried partly by rail and partly by water to its destination.

(c) Improved and adequate highways have been constructed between the terminals and the city. H. L. WATTERSON, *Terminal Agent.*

Clyde Steamship Co., Brunswick, Ga., write under date of August 27, 1912:

(a) For an accurate description of these terminals I would refer you to Mr. H. L. Watterson, terminal agent. The property is situated at the extreme end of the wharf frontage at this port, about 2 miles above or north of the quarantine station, on the north side of Oglethorpe Bay. They are entirely efficient for the business which has heretofore moved across them, but are being extended and improved, a description of which work can be given you best by Mr. Watterson. While they are not public wharves in the sense that they can be used without permission from the owners, they are open to the use of all water carriers upon equal terms, all charges collected on business moving across them being filed with the Interstate Commerce Commission. There are no berthing charges of any character, charges being collected on the basis of the cargo moving across the wharves, which charges are assessed and collected on the basis above stated.

(b) Physical connection exists between these terminals and all rail lines operating into Brunswick. I should judge from your letter that you desire to know if any business is handled across these terminals the revenue for which is prorated between the rail and water lines operating solely on inland waters, and that your question does not refer to ocean-borne traffic—that is to say, import charges and business interchanged with the Clyde Line. If so, beg to refer you to Mr. Watterson, as I am not in a position to advise what arrangements are in effect between the rail lines and inland river lines. However, the Clyde Line interchanges business with the Fernandina, St. Marys, St. Simons, Satilla River, and Darien Boat Line, the revenue being prorated between our line and theirs.

(c) Improved and adequate highways are constructed between these terminals and the city of Brunswick.

M. M. RILEY, Jr., *Agent.*

Southern Railway Co., Brunswick, Ga., write under date of September 13, 1912:

The Southern Railway, as you are probably aware, has two wharfs at Brunswick, one at the foot of Mansfield Street, where we have two large open sheds and two large storage warehouses. These are very accessible, and are open to the public on payment of regular wharfage, storage, and handling charges, as are published by our company, which tariff is on file with the Interstate Commerce Commission.

At Turtle River we have five warehouses and two large open sheds. The open sheds and one large warehouse are used exclusively for handling export cotton in connection with the Strachan Line steamers to Europe. The other four warehouses are accessible to the public, and are used for storage and shipping traffic on same basis as the docks in the city—that is, in accordance with published rates and rules on file with the Interstate Commerce Commission.

We are making considerable improvements and adding new facilities to Turtle River docks just now, and our management has recently made an appropriation of about $75,000 for a new storage warehouse at Turtle River docks, which we hope to have ready for occupancy within 12 months from now.

We have, as you are probably aware, adequate tracks leading to our docks both in the city and at Turtle River docks.

If there is any specific information which you desire in addition to the above, I will be pleased to hear from you further.

E. L. MCGOUGAN,
General Agent.

(a) General location and description.
(b) Physical connection between water terminals and railroads.
(c) Connection with highways.

Cumberland Route, Brunswick, Ga., write under date of October 18, 1912:

To paragraph A: The Brunswick & Florida Steamboat Co. use the Southern Railway docks, foot of Mansfield Street, Brunswick, Ga. We rent the privilege from Southern Railway Co., other water carriers having the same privileges at this dock. It is kept in repair by Southern Railway Co., and is easily accessible and affords ample accommodation.

We also have landing privileges at Jekyl Island, furnished us by the Jekyl Island Club. At Cumberland Island we lease the dock privilege and control same exclusively, we assuming all expense of maintenance, etc. At Cabin Bluff we have a similar contract to that at Cumberland. At Fernandina we rent dock privileges from owners of dock at foot of Center Street; same is also used by other water carriers.

St. Simons Transit Co. This company rents its dock privileges from Southern Railway Co. at their wharf foot of Mansfield Street. The dock is also used by other water carriers. This company owns and maintains a dock at Ocean Pier, St. Simons Island, and uses same exclusively for traffic between Brunswick and St. Simons, but permission is granted to parties owning steamers plying from other points to land excursions at this dock.

Brunswick, St. Simons & Darien Steamboat Co.—This company rents its dock privilege at Brunswick from the Downing Co.; dock at foot of Monk Street. Same is also used by other water carriers. It has ample accommodations for the handling of all traffic. We lease the dock at St. Simons Mills and use same exclusively. Our line assuming all expense of repairs and maintenance. Same conditions prevail at Frederica, St. Simons Island. Dock privilege at Darien is leased from owners and used exclusively by our line.

To paragraph B: Our lines have no physical connection with each other or the railway company's, but each of the lines have a prorata arrangement with Clyde Steamship Co. on all freights consigned to or from points on their lines. We have no prorata arrangements with the railroads, but receive freight from them, paying their local charge to Brunswick and assessing our local to destination points on our lines.

Brunswick & Florida Steamboat Co. and St. Simons Transit Co. each have passenger traffic arrangements with the railroads operating to Brunswick on tickets and mileage sold by them to points on our lines. The Brunswick, St. Simmons & Darien Steamboat Co. have prorata arrangements with the Georgia Coast & Piedmont Railway on freight to points on their line, assessing the regular freight tariff of Georgia Coast & Piedmont Railway from Darien and dividing the revenue equally. They also honor tickets sold by the Georgia Coast & Piedmont Railway.

Each of our lines carry mixed cargoes, consisting principally of lumber, grain, hay, coal, groceries, iron, etc. All freight is handled by manual labor.

To paragraph C: Adequate highways lead to each of our terminals, and where public are kept in repair by the respective county officials, and where private by the owners of the property. Signed by J. B. Wright, manager "Cumberland Route."

SATILLA RIVER, GA.

1. (*a*) The Satilla River has 10 main shipping points for miscellaneous merchandise, lumber, and navel stores, the principal ones of these being at Ceylon, 20 miles from the mouth, Seaboard Air Line railroad crossing at Woodbine, mileage 26; Owens Ferry Mills, mileage 32; Clarks Bluff, mileage 35; Bullhead Bluff, mileage 40.5; and Burnt Fort, mileage 52. Small wharves exist at these points for the handling of any class of necessary commodities. The other landings are mainly those for the accommodation of the Satilla River Steamboat Co., with its biweekly boat service in conjunction with numerous small launch lines handling freight to and from Brunswick by the use of barges. Seagoing sailing vessels load lumber up as high as Owens Ferry, 32 miles from its mouth, the loading of which is a

(*a*) General location and description.

done by manual labor. So far as has been learned, these landings are open to all water carriers.

2. (*b*) Traffic arrangements exist between the Satilla River Steamboat Co. and some of the railroads at Brunswick for shipment up this river, also between this boat line and the Seaboard Air Line Railway at Woodbine. Other small lines have no traffic arrangements. The transfer of freight is effected by suitable wharf facilities at railroad crossings.

3. (*c*) Adequate country highways exist at all landings except at Seaboard Air Line bridge, which is served by tracks.

4. (*d*) The opinion is held that adequate terminals and landings exist along this river for the needs of the present commerce.

INSIDE WATERWAY, SAVANNAH, GA., TO FERNANDINA, FLA.

1. (*a*) The inside waterway is made use of mainly by daily combination passenger and freight steamers out of Brunswick to Darien and Fernandina. On the route to Darien there exists three main landings, all of which are kept up by the steamboat line for the accommodation of the inhabitants contiguous to these landings. On the route to Fernandina four main landings exist, the wharves being maintained by the steamboat company at two of them and by the dock owners at the other two.

2. All of the intermediate wharves on this portion of the waterway are used by the transportation line, building or maintaining same to the exclusion of other water carriers. In the case of wharf at Jekyl Island Club and Dungeness, Cumberland Island, the same are used exclusively for commerce consigned to or from these respective points.

3. (*b*) Where steamboat lines touch railroad terminals, such as Darien and Brunswick, Ga., and Fernandina, Fla., a passenger traffic arrangement exists, but no freight arrangement. At Brunswick a freight prorate arrangement exists between the local water lines and Clyde Steamship Line.

4. (*c*) Highways adequate for the use to which each is subject lead to the various landings along this route.

5. (*d*) No other terminals needed.

For letters pertaining to this waterway see that of J. B. Wright, manager of the Brunswick & Florida Steamboat Co., St. Simons Transit Co., and Brunswick, St. Simons & Darien Steamboat Co.

FERNANDINA HARBOR, FLA.

1. (*a*) The wharves and terminals of this port are situated upon the east shore of Amelia River, which forms one of the arms of Cumberland Sound, and extend along the river for a distance of about 2 miles, beginning about three-quarters of a mile from its mouth. These wharves and terminals are used chiefly for the export and

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

coastwise shipment of lumber, phosphate, and naval stores, and import of miscellaneous commodities. The Seaboard Air Line Railway owns approximately 4,000 feet and the major portion of the remainder is owned by the Fernandina Dock and Realty Co., with a small amount owned by private individuals. All wharves are built on untreated pine piling, which are gradually being replaced by creosote piling when repaired. The decks are of 3-inch plank, and the faces serrated, with a few depressed slips for handling small commodities.

2. All these wharves are open to the public, subject to such charges as are covered by the published tariff approved by the Interstate Commerce Commission.

3. (*b*) There is no prorating arrangement between the railroad and water carriers, either export or coastwise.

4. (*c*) All the wharves above mentioned are served by one or more railroad tracks, some of which are close to the water front within easy reach of ship's tackle. Only a small portion of this water front is accessible by means of highways or city streets.

5. (*d*) While probably adequate terminals exist for the handling of the major portion of the commerce of this port, there is needed some municipal dock of small frontage for the accommodation of the local traffic coming in small crafts to this port.

There is appended hereto extract from letter of agent Seaboard Air Line, Fernandina, bearing on this subject.

Seaboard Air Line Railway, Fernandina, Fla., writes, under date of August 28, 1912:

Section A.—At the port of Fernandina there are about 2 miles of wharves and water terminals, used chiefly for the export and coastwise shipments of lumber, phosphate, and naval stores and the import of miscellaneous commodities. Practically all of these wharves are constructed with piling for foundation and are covered with regulation 3-inch plank. The Seaboard Air Line Railway owns about 4,000 feet of these wharves, with a depth of water ranging from 22 to 30 feet at low water. The rise and fall of tide is about 6 feet.

Wharves not owned by the Seaboard Air Line Railway are owned by private companies or individuals. The use of the railroad wharves is open to the public, and the charges for same are covered by published tariff, which is approved by the Interstate Commerce Commission.

Section B.—All the wharves above mentioned are served by one or more railroad tracks, some of which are close to the water front, within reach of ship's tackle.

There is no prorating arrangement between the railroad and water carriers either export or coastwise. Coastwise business is handled principally by sail vessels, which make their own contracts or charters.

Section C.—All terminals are served by adequate highways and railroad tracks.

D. H. GROUND, *Agent.*

ST. MARY'S RIVER, GA. AND FLA.

1. (*a*) The St. Marys River has four main loading points—namely, St. Marys, Ga.; Crandall, Fla.; Germantown, Ga.; Kings Ferry, Fla.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

with numerous small landings along the river for the accommodation of the biweekly combination freight and passenger steamer navigating this river for approximately 40 miles of its lower length. Timber products and naval stores are loaded in this portion of the river, where suitable bank landings exist or small docks are constructed.

2. At St. Marys, Ga., mileage 5½, the largest shipping point, a small railroad terminates, namely, the Kingsland & St. Marys, which, though it does not own any of the water front, parallels the same for about 1,500 feet, allowing a transfer from it to the docks owned by private individuals in most places, and one small dock owned by the combination freight and passenger steamboat. The docks at Crandall, mileage 12½, and Kings Ferry, mileage 37, are only of a few hundred feet in length and owned by the sawmill companies located at these points. At Germantown, mileage 35, owing to the bluffness of the bank, no docks are necessary for the loading of such commodities as are handled there, namely, crossties and round timber.

3. (*b*) No traffic arrangements or agreements exist between the regular weekly boat line and the landings existing along this river.

4. (*c*) Physical connections in the shape of adequate highways in very fair condition serve all the minor landing points. So far as can be learned there exists no discrimination at any of these terminal or transfer points.

5. (*d*) The Seaboard Air Line Railway crosses the St. Marys River about 23 miles from its mouth, but there exists no transfer facilities or agreement between any water line and this railroad at this point.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

REPORT OF CAPT. J. R. SLATTERY, CORPS OF ENGINEERS, IN CHARGE OF THE JACKSONVILLE, FLA., DISTRICT.

[The letters (*a*), (*b*), (*c*), and (*d*) indicate subheadings as shown by footnotes.]

ST. JOHNS RIVER, MAYPORT TO JACKSONVILLE.

(*a*) At Mayport:

One wharf 1,200 feet long; wood; depth of water, 24 feet. Owner, Florida East Coast Railway.

One pier 160 by 130 feet; wood; depth of water, 24 feet. Owner, R. G. Ross.

The wharf and pier are used principally for loading and unloading and storage of coal, although boats are allowed to use the Florida East Coast wharf if the business of the railway is not interfered with.

The pier and wharf are provided with bins for coal storage and mechanical appliances for handling coal.

The pier and wharf are open to all boats on equal terms.

Terms not known.

(*b*) Physical connection exists between the Florida East Coast Railway wharf and the Florida East Coast Railway, but there is no railroad connection with the pier owned by R. G. Ross.

It is thought that there is no contract for interchange of traffic by prorating of charges on freight carried partly by rail and partly by water.

(*c*) No improved or adequate highways have been constructed to the water terminals.

(*d*) Mayport is not a distributing point, and no wharves are necessary, except those needed by the Florida East Coast Railway Co. for its own purposes and for R. G. Ross for coal dock.

(*a*) At Jacksonville:

Pier 52.5 by 300 feet; wood; depth of water, head 24 feet, slip 12 to 22 feet. Owner, W. H. Adams.

Pier 24 by 373 feet; wood; depth of water, 16 feet. Owner, Armour Fertilizer Co.

Pier 20 by 240 feet; wood; depth of water, 10 feet. Owner, Beach & Miller.

Pier 50 feet by 500 feet; wood; depth of water, 23 feet. Owner, Cummer Lumber Co.

Pier 150 feet by 200 feet; wood; depth of water, 17 to 19 feet. Owner, Cummer Lumber Co.

Pier 110 feet by 400 feet; wood; depth of water, 15 to 16 feet. Owner, Clyde Steamship Co.

Pier 145 feet by 443 feet; wood; depth of water, head 24 feet, slip 18 feet. Owner, Clyde Steamship Co.

Pier 150 feet by 443 feet; wood; depth of water, head 24 feet, slip 18 feet. Owner, Clyde Steamship Co.

Pier 125 feet by 443 feet; wood; depth of water, head 24 feet, slip 24 to 27 feet. Owner, Clyde Steamship Co.

Pier 40 feet by 450 feet; wood; depth of water, 24 feet. Owner, Dutton Phosphate Co.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

Pier 180 feet by 550 feet. Owner, Eppinger & Russell.

Pier 210 feet by 210 feet; wood; depth of water, head 12 feet, slip 8 to 12 feet. Owners, George R. Foster, jr., and S. B. Hubbard Co.

Pier 52.5 feet by 225 feet; wood; depth of water, 6 to 13 feet. Owner, Inter-Ocean Steamship Co.

Pier 42 feet by 381 feet; wood; depth of water, head 24.5 feet, slip 19 feet. Owner, Jacksonville Traction Co.

Pier 55 feet by 220 feet; wood; depth of water, head 23 feet, slip 20 feet. Owner, Logan Coal Co.

Pier 131 feet by 200 feet; wood; depth of water, head 12 to 15 feet, slip 9 to 15 feet. Owner, Main Street Dock Co.

Pier 200 feet by 750 feet; wood; depth of water, head 24 feet, slip 20 feet. Owner, Merchants & Miners Steamship Co.

Pier 40 feet by 340 feet; wood. Owner, Merrill-Stevens Co.

Pier 40 feet by 350 feet; wood; depth of water, head 24 feet, slip 16 feet. Owner, Weller Coal Co.

Pier 30 feet by 175 feet; wood; depth of water, 8 to 12 feet. Owner, Ocean Street Wharfs Co.

Pier 280 feet by 470 feet; wood; depth of water, 24 feet. Owner, Seaboard Air Line Railway.

Pier 160 feet by 270 feet; wood; depth of water, 24 feet. Owner, Seaboard Air Line Railway.

Pier 60 feet by 400 feet; wood; depth of water, head 24 feet, slip 15 to 24 feet. Owner, Consolidated Grocery Co.

Pier 52.5 feet by 400 feet; wood; depth of water, head 24 feet, slip 21.5 feet. Owner, Dr. J. D. Fernandez.

Pier 75 feet by 230 feet; wood; depth of water, 19 feet. Owner, Standard Oil Co.

Pier 45 feet by 400 feet; wood; depth of water, head 17 feet, slip 16 feet. Owner, E. E. and J. W. West.

Pier 10 feet by 150 feet; wood; depth of water, 16 feet. Owner, Taliaferro-Hubbard Co.

Pier 8 feet by 740 feet; wood; depth of water, 22 feet. Owner, Upchurch Lumber Co.

Pier 100 feet by 400 feet; wood; depth of water, head 24 feet, slip 20 feet. Owner, Weisenfeld Warehouse Co.

Wharf 225 feet long; wood; depth of water, 22 feet. Owner, American Agricultural & Chemical Co.

Wharf 540 feet long; wood; depth of water, 24 feet. Owner, Atlantic Coast Line Railway.

Wharf 3,100 feet long; wood; depth of water, 15 to 20 feet. Owner, Atlantic Coast Line Railway.

Wharf 100 feet long; wood; depth of water, 12 feet. Owner, Florida East Coast Railroad System.

Wharf 100 feet long; wood; depth of water, 9 feet. Owner, Florida East Coast Railroad System.

Wharf 150 feet long; wood; depth of water, 23 feet. Owner, Gulf Refining Co.

Wharf 400 feet long; wood; depth of water, 17.5 to 21 feet. Owner, Keystone Lumber Co.

Wharf 385 feet long; wood; depth of water, 16 feet. Owner, Mason Forwarding Co.

Wharf 75 feet long; wood; depth of water, 24 feet. Owner, E. O. Painter.

Wharf 180 feet long; wood; depth of water, 15.5 feet. Owner, E. O. Painter.

Wharf 940 feet long; wood; depth of water, 22 feet. Owner, Seaboard Air Line Railroad.

Wharf 380 feet long; wood; depth of water, 15 to 18 feet. Owner, Seaboard Air Line Railroad.

Wharf 300 feet long; wood; depth of water, 16 feet. Owner, Wilson & Toomer Fertilizer Co.

Wharf 1,400 feet long; wood; depth of water, 18 to 25 feet. Owner, Southern Railway.

The wharves and piers are used by Clyde Steamship Co., Armour Fertilizer Co., Atlantic Coast Line Railway, Beach & Miller Steamboat Line, Dutton Phosphate Co., Eppinger & Russell (creosote works), Florida East Coast Railway, Gulf Refining Co., Inter-Ocean Steamship Co., Independent Line of Steamers, Keystone Lumber Co., Logan Coal Co., Main Street Dock Co., Mason Forwarding Co., Merchants & Miners Steamship Co., Miller Coal Co., E. O. Painter (fertilizer works), Seaboard Air Line Railway, Southern Steamship Co., Standard Oil Co., Upchurch Lumber Co., Weisenfeld Warehouse Co., Wilson & Toomer Fertilizer Co., and the Cummer Lumber Co.

There are warehouses on all the piers and wharves except the following: Atlantic Coast Line Railway (near the viaduct), Eppinger & Russell, Gulf Refining Co., Jacksonville Traction Co., Keystone Lumber Co., Weller Coal Co., Seaboard Air Line Railway (east side Hogan Creek), E. O. Painter (near Florida East Coast Railway bridge), Standard Fuel & Supply Co., Standard Oil Co., Taliaferro-Hubbard Co., Upchurch Lumber Co., Talleyrand Dock, and Dutton Phosphate Co.

The following wharves and piers have mechanical appliances for loading and discharging cargoes: Standard Oil Co., American Agricultural & Chemical Co., Gulf Refining Co., Armour Fertilizer Co., Logan Coal Co., Eppinger & Russell, Cummer Lumber Co., Dutton Phosphate Co., and Wilson & Toomer Fertilizer Co.

All of the above list of docks and piers are considered private except wharves and piers owned by the following companies: W. H. Adams, Inter-Ocean Steamship Co., Independent Line of Steamers, Main Street Dock Co., Weller Coal Co., Ocean Street Wharf Co., and Weisenfeld Warehouse Co.

Terms and conditions for use of so-called public docks not known.

(*b*) Railway connections exist with all of the above-described piers and docks except the following: George R. Foster, jr., and S. B. Hubbard Co., Keystone Lumber Co., Weller Coal Co., Standard Oil Co., and Taliaferro-Hubbard Co.

The physical connection between the wharves and the railroads are either by the railroad companies themselves or by connection with the St. Johns River Terminal Co.

No contracts are known to exist for the interchange of traffic between rail and water transportation, the freight charges on same being prorated between the two carriers.

(*c*) Adequate improved highways lead to the wharves and piers at Jacksonville.

(*d*) Terminal facilities at Jacksonville are not adequate and public terminals having a water front of approximately 1 mile are required. These should be equipped with mechanical appliances for handling freight.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

ST. JOHNS RIVER, JACKSONVILLE TO PALATKA.

(*a*) The only terminal on this stretch of the river consists of a wharf at Palatka. The wharf is wooden construction, about 100 feet long by 20 feet wide. Depth of water along wharf 14 feet. Owned by the Hart estate.

This wharf is used by the Clyde Line, Beach & Miller, Hart Line, independent river boats, and to some extent by tugboats bringing tows to Jacksonville.

There are no mechanical appliances on the wharf for handling freight, and no shed for the storage or assorting of freight.

The dock is open to all boats on equal terms.

Charges for use of wharf not known. Stated by board of trade of Palatka to be the lowest on the river.

(*b*) There is no physical connection between the wharf and the railroad.

The board of trade of Palatka state: "There are arrangements between the water carriers and the railroads providing for interchange of traffic, carried partly by rail and partly by water."

(*c*) Improved highways lead to the wharf, but freight must be hauled up a narrow, rather steep road to reach good highways.

(*d*) The terminals are sufficient for the needs of this locality.

ST. JOHNS RIVER, PALATKA TO LAKE HARNEY.

(*a*) On this stretch of the St. Johns River there are numerous private landings where boats stop for fruit, lumber, vegetables, etc. No charge is made for boats stopping at these landings, and boats have no occasion to use them, except when they stop for freight. They are in no sense terminals, as they do not serve towns, but are used only individually.

At Stanford there exists a wharf, believed to be owned by the Clyde Steamship Co. This wharf is about 150 feet in length and has a covered shed upon it, used by the Clyde Steamship Co. as offices, storerooms, and an assorting shed. The wharf lies well out in Lake Monroe, and is connected to the shore by a long pile pier.

(*a*) At Sanford, on south side of Lake Monroe: Pier 900 by 10 feet; wood; depth of water, 4 feet. Owner, Atlantic Coast Line Railway.

Pier 750 by 15 feet, approximately; wood; depth of water, 5 feet. Owner, city of Sanford.

Pier 650 by 15 feet, approximately, with head 50 by 15 feet; wood; depth of water, 5 feet. Owner, Florida Fish & Produce Co.

Pier 650 by 20 feet, approximately, with head 50 by 50 feet; wood; depth of water, 7 feet. Owner, Clyde River Line steamers.

The Clyde River Line steamer pier is used by its own boats; the Florida Fish & Produce Co. pier, by fish boats only; the Atlantic Coast Line Railway pier, by railroad only; the city pier by small freight boats, launches, and pleasure craft.

Warehouses on all piers except Atlantic Coast Line Railway and city.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

The city dock is open to all; all other piers are private.

No charges on city pier.

At Enterprise, on north side Lake Monroe: One pier 300 by 15 feet, approximately, with head; wood; depth of water, 7 feet. Owner not known.

(*b*) There exists physical connection between the Atlantic Coast Line Railway, pier and railroad. No physical connection between the railroad and the other piers.

No contract is thought to exist between the railroad and the boats for interchange of freight.

(*c*) Adequate highways lead to the wharves.

(*d*) The terminals are adequate for this locality.

(*a*) On the river between Palatka and Sanford there are numerous private landings where boats stop for fruit, lumber, vegetables, etc. No charge is made for stopping at these landings. They are in no sense terminals.

OKLAWAHA RIVER, FLA.

Along this river there are small boat landings that are more or less out of repair.

The commerce of the river is very small, due to the difficulties of navigation, and the boat landings are in no sense terminals.

ST. AUGUSTINE, FLA.

(*a*) At St. Augustine:

Pier 350 by 20 feet, approximately, with head; wood; depth of water, 9 to 12 feet; owner, business men of St. Augustine.

Pier 350 by 20 feet, approximately, with head; wood; depth of water, 9 to 12 feet; owner, George Corbett.

Pier 300 by 15 feet, approximately, with head; wood; depth of water, 9 to 12 feet; owner, Power Boat Club.

Pier 350 by 15 feet, approximately, with head; wood; depth of water, 9 to 12 feet; owner, J. L. Pomar.

Piers are used by fishing boats, one line of steamboats, and pleasure launches.

Piers have warehouses and boathouses upon them.

All the piers are open for public use except the Power Boat Club Pier.

Terms and conditions of use of piers not known.

(*b*) Physical connection does not exist between the railroads and the piers.

No contract exists between the rail and water carriers.

(*c*) Improved highways lead to these piers.

(*d*) Terminal facilities are ample for this locality.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

INDIAN RIVER, FLA.

(*a*) At Titusville:

Pier 1,380 feet long by 14 feet wide; wood; depth of water, 5 to 6 feet; owner, city.

The pier is used by small freight boats, launches, and cruising craft.

The dock is probably efficient for the needs of the locality.

It is open to all boats on the same terms. No charges are made to boats using the dock.

(*b*) There is no physical connection between the wharf and the railroad serving this locality, the Florida East Coast Railway.

There is no contract existing between the railroad and water carriers for the interchange of freight.

(*c*) Adequate highways lead to the wharf.

(*d*) The water terminals are probably sufficient for the present needs of the locality.

(*a*) At Rockledge:

Pier 100 by 100 feet; concrete; depth of water, 4 feet; owner, Hotel Indian River Co.

Used by small freight boats, launches, and pleasure craft.

This dock is supposed to be open to the general public on equal terms.

(*b*) No physical connection exists between the railroad and the dock.

No connection is thought to exist between the railroad and water transportation interests.

(*c*) Good highways lead to the dock.

(*d*) Terminal facilities are sufficient for the locality.

(*a*) At Cocoa:

Pier 200 by 200 feet; wood; depth of water, 3 feet; owner, town of Cocoa.

Used by small freight boats, launches, and pleasure craft.

Open to the public without restriction. No charges for use of same.

There is a second small pier, owned by S. F. Travis & Co., where boats are allowed to land without charge.

(*b*) The railroad extends to the water front.

It is not thought that there is any contract between the railroad and water carriers for the interchange of freight.

(*c*) It is not known whether improved highways lead to this dock or not.

(*d*) Water terminals are considered ample for this locality.

(*a*) At Hobe Sound:

A landing stage is in process of construction at this locality, and one slip, 150 feet long by 50 feet wide, 5 feet deep, has been dug alongside of the railroad; owner, Indian River Association.

This landing stage will be used by small freight boats, launches, and cruising craft.

The landing stage will be open to all boats on the same terms. No charges are now being made for the docking facilities.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*b*) Small narrow-gauge railroad conects the landing stage with the Florida East Coast Railway.

No contracts exist for the interchange of freight between the railroad and boats.

(*c*) A shell road is being built to the boat landing.

(*d*) It is thought that the construction now under way will furnish all the terminal facilities required for this locality.

(*a*) At Eau Gallie:

Wharf, 100 by 32 feet; wood; depth of water, 5 feet 6 inches; owner, Florida East Coast Railway.

Wharf, 40 by 25 feet; wood; depth of water, 4 feet; owner, East Coast Lumber & Supply Co.

Wharf, 150 by 16 feet; wood; depth of water, 3 feet 6 inches; owner, city and yacht club.

These wharves are used by small freight boats, launches, and pleasure craft.

Open to all boats on equal terms. No charge is made for use of same.

(*b*) Physical connection exists between the railroad and the water terminal.

No contract exists between the railroad and water carriers for interchange of freight.

(*c*) Good highways lead to the East Coast Railway Wharf and the City and Yacht Club Wharf.

(*d*) Water terminals are considered ample for this locality.

(*a*) At Fort Pierce:

Pier 700 by 20 feet; wood; depth of water, 7 feet; owner, P. P. Cobb.

Used by small freight boats, launches, and pleasure craft.

Open to all boats on the same terms.

No charges are made to any boats landing at this dock.

(*b*) There is no physical connection between the railroad and wharf.

(*c*) Improved highway leads to the dock.

(*d*) No additional terminals are required for this locality.

BISCAYNE BAY, FLA.

(*a*) At Miami:

Wharf, 1,000 feet long on Biscayne Bay; wood; depth of water. 10 feet; owner, Florida East Coast Railway.

Wharf, 300 feet long on Miami River; wood; depth of water, 10 feet; owner, Florida East Coast Railway.

Wharf, 210 feet long on south side Miami River; wood; depth of water, 10 feet; owner, George F. Cook.

Wharf, 1,700 feet long covering the portions on both sides the Miami River; wood; depth of water, 10 feet; owner, Van Steamship Co.

The wharves are used by the Peninsular & Occidental Steamship Co., Florida East Coast Railway, Van Steamship Co., schooners trading between Nassau and Key West, fish boats, small freight boats, launches, and pleasure craft.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

All the piers are considered private except the Van Steamship Co. Pier. The owners of this pier say that their docks and wharves are open to all boats on the same terms. Boats not owned by the Van Steamship Co. are charged a flat rate unless otherwise agreed upon, general average not over 10 cents per pound.

(*b*) Physical connection exists between the wharves owned by the Florida East Coast Railway and the railroad itself.

No contract exists for the transfer of freight between the rail and water transportation companies except probably between the Peninsular & Occidental Steamship Co. and the Florida East Coast Railway Co., the Peninsular & Occidental Steamship Co. being partly owned by the Florida East Coast Railway.

(*c*) Improved and adequate highways lead to these wharves.

(*d*) At the present time the harbor at Miami is not suitable for commercial purposes. If the harbor is improved it is essential that municipal terminals be provided, which would probably be located between the Florida East Coast wharf and the Miami River. A frontage of not less than 800 feet should be secured and wharves constructed of this length. Connection should be made between the wharf and the tracks of the Florida East Coast Railway, and a suitable shed should also be built upon this wharf.

KEY WEST, FLA.

(*a*) At Key West there are 13 wharves or piers, as follows:

Wharf, frontage, 464 feet; wood on concrete piles; depth of water at wharf 24 feet; owner, Mallory Steamship Co.

Wharf and pier: Wharf frontage, 320 feet; pier, 140 by 30 feet; wooden construction; depth of water, 25 feet; owner, Porter Dock Co.

Pier, 375 by 75 feet; wooden; depth of water, 24 feet; owner, Peninsula & Occidental Steamship Co.

Piers, 270 by 120 feet, and 200 by 100 feet; wood; depth of water, 17 and 18 feet; owner, Wm. Curry's Sons Co.

Piers, 400 by 40 feet and 180 by 150 feet; wood; depth of water, 5 to 7 feet; owner, John Lowe, jr., Sons.

Pier, 672 by 10 feet; wooden deck on concrete columns; depth of water, 5 to 7 feet; owner, Gulf Refining Co.

Pier, 2,000 by 134 feet; concrete and wood; depth of water, 8 to 24 feet; owner, Florida East Coast Railway.

Pier, 170 by 50 feet, with approach 950 by 20 feet (under construction); concrete; depth of water at head of pier, 20 feet; owner, United States War Department.

Piers, 300 by 40 feet and 260 by 40 feet with approaches to piers; steel and concrete; depth of water, 22 feet; owner, United States Navy Department.

Quay, 1,200 feet concrete; depth of water, 6 and 20 feet; owner, United States Navy Department.

Pier, 170 by 40 feet; wood; depth of water, 17 feet; owner, United States Commerce and Labor Department.

The piers and wharves are used by the Mallory Steamship Co., the Peninsular & Occidental Steamship Co., the United States Government, Florida East Coast Railway, and by shipping engaged in general traffic.

All piers, except one owned by the United States Navy and one by the War Department, have warehouses for storage of freight. The

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(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

Navy piers have coal sheds. The piers owned by the United States Navy and Peninsular & Occidental Steamship Co. have mechanical arrangements for loading and unloading coal. All piers are in serviceable condition.

The piers of the Porter Dock Co., Wm. Curry's Sons Co., John Lowe, jr., Sons Co., are open to all boats at a maximum rate of 1 cent a ton per day. The piers owned by the Mallory Steamship Co. and the Peninsular & Occidental Steamship Co. are not open to other boats. Wharfage charges are made for all freight transferred over same.

(*b*) There is no physical connection between any of the piers or wharves and the Florida East Coast Railway, the only railroad serving this locality, except with the railroad's own pier.

Contracts exist between Florida East Coast Railway and the Peninsular & Occidental Steamship Co. for interchange of traffic and proating rates.

(*c*) Adequate highways have been constructed to each water terminal.

(*d*) The terminals are adequate for the needs of the locality.

KISSIMMEE RIVER, FLA.

(*a*) The only terminal facilities on this river consist of a few small landings along the river, the principal ones being at Kissimmee and Fort Bassinger.

The landings are used by small river boats and launches.

Some of the wharves have small sheds for storing freight.

The conditions for the use of these wharves by boats, not known.

(*b*) No connection exists between the wharves and railroad serving this country. In fact, the only point reached by railroad is Kissimmee.

No contracts exist between the rail and water carriers.

(*c*) Roads, but not improved highways, lead to the landings along the river. They are believed to be generally very poor.

(*d*) In its present condition navigation is carried on along the Kissimmee River with great difficulty, and existing wharves are believed to be sufficient for the needs of commerce.

CALOOSAHATCHEE RIVER, FLA.

(*a*) At Fort Myers there are four long piers, with wharves at their outer ends, as follows:

Pier, 1,200 by 15 feet; head, 40 by 20 feet; wood; depth of water, 10 feet; owner, Atlantic Coast Line Railway.

Pier, 900 by 15 feet; head, 60 by 40 feet; wood; depth of water, 10 feet; owner, city.

Pier, 840 by 15 feet; head, 40 by 20 feet; wood; depth of water, 10 feet; owner, city.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

Pier, 800 by 15 feet; head, 20 by 40 feet; wood; depth of water, 10 feet; owner, hotel company.

Pier, 800 by 15 feet; head, 40 by 60 feet; wood; depth of water, 3 feet; owner, Flowerees.

These piers are used by freight boats operating on the river; one steamboat operating between Tampa, Fort Myers, and Key West; launches; and pleasure craft.

The piers have warehouses for the storage and transfer of freight.

The two piers belonging to the city are leased to private parties, with, however, a proviso that they shall be open to any and all boats on equal terms. The rates allowed to be charged to boats loading or unloading at these piers are 1 cent per crate on vegetables, 1½ cents per crate on oranges, 2 cents per crate on merchandise, and 30 cents per thousand on lumber.

The pier owned by the hotel company is only open to the use of the guests of the hotel.

The pier owned by the Atlantic Coast Line Railway is open only to the use of such boats as carry freight for the railroad. Wharfage charges or transfer charges not known.

There are other wharves at Alva and La Belle, points on the river. These are pile landings belonging to the town at which they are located and are open to all boats without charge. There are also along the river numerous landings owned by private individuals and open to the free use of such boats as desire to use them. They are actually used only by boats having freight for their owners or taking freight from their owners.

(*b*) The only wharf connected with the Atlantic Coast Line Railway, the railroad serving this locality, is the wharf belonging to that company at Fort Myers.

No contracts are known to exist between the railroad and the water carriers.

(*c*) Adequate highways lead to the wharves at Fort Myers and to the landings at La Belle and Alva. No highways lead to the private landings along the river.

(*d*) The water terminals are considered sufficient for this locality.

ORANGE RIVER, FLA.

(*a*) There is nothing in the nature of terminals on this river except a few landings owned by riparian owners on whose property they are located.

(*b*) No railroad serves this territory.

(*c*) No highways lead to these landings.

(*d*) The landings are sufficient for the commerce of the river.

CHARLOTTE HARBOR, FLA.

(*a*) At South Boca Grande: There are two piers, one with a single-track approach about 350 feet long by 130 feet wide; depth of water.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

12 to 20 feet; and the other dock with approach about 750 feet long, with a head 250 by 130 feet; depth of water, 20 to 30 feet. Both docks constructed of wood. Owner, Boca Grande Terminal Co.

Used by the Charlotte Harbor & Northern Railway, phosphate and coal steamers, schooners, pleasure yachts, and small power boats plying between South Boca Grande and neighboring islands.

On one of the docks is a warehouse used for storage of freight for company store, etc., also a belt conveyer extending out on the dock from the shore end of same for loading phosphate.

Docks are open to all boats on the same terms.

There are no charges to boats using this dock, but wharfage for freight over same is as per attached sheet.

SUPPLEMENT No. 1 TO LOCAL FREIGHT TARIFF No. 129, CHARLOTTE HARBOR & NORTHERN RAILWAY ("BOCA GRANDE ROUTE"), CONTAINING WHARFAGE, STORAGE, AND HANDLING CHARGES AT THE PORT OF SOUTH BOCA GRANDE, FLA.

[Issued Jan. 1, 1912, effective Feb. 5, 1912. Supplement No. 1 contains all changes from the original tariff that are effective on the date hereof.]

WHARFAGE CHARGES AT SOUTH BOCA GRANDE, FLA.—ADDITION.

The following charges will be assessed for wharfage on commodities named at South Boca Grande, Fla., when received from boat lines, shipments originating Charlotte Harbor landings:

	Cents.
Oranges and lemons, per crate	$0.02
Peaches and pears, per crate	.04
Pineapples, l. c. l. per barrel or barrel crate	.04
Strawberries, per 100 pounds	.05
Vegetables, per barrel	.04
Vegetables, per crate	.02
Watermelons, pineapples, coconuts, bananas, and analogous articles, per car 24,000 pounds	5.00

APPLICATION OF RATES.

Item No. 1.—The charges shown herein will be made and collected by the Charlotte Harbor & Northern Railway for the services indicated, in addition to the transportation rates on the property herein described, passing over company's wharves or stored in warehouses or storehouses, or on other property operated by the Charlotte Harbor & Northern Railway.

The minimum wharfage, storage, and handling charges shown herein will not apply on local port traffic delivered to or received from water craft loading or discharging at railroad or steamship wharves, it being understood that the term "local port traffic" covers traffic having its origin or destination within the limits of the ports, and traffic which simply passes over the terminals of the railroads or steamship lines.

EXCEPTIONS AND LIMITATIONS.

Item No. 2.—The Charlotte Harbor & Northern Railway does not, under this tariff, obligate itself to provide wharfage, storage, or handling for property which has not been transported, or is not intended to be transported, over its lines, and as to the property which has been transported, or is intended to be transported, over its lines, the Charlotte Harbor & Northern Railway does not obligate itself to provide wharfage, storage, or handling beyond the reasonable capacity of its properties and facilities. All services undertaken to be performed by the Charlotte Harbor & Northern Railway under this tariff are further subject to Federal, State, and municipal laws and regulations. Articles of a highly inflammable or explosive nature or articles of an uncertain value will not, under this tariff, be provided with wharfage, storage, or handling, unless under special agreement. The Charlotte Harbor & Northern Railway does not, under this tariff, hold itself out to be a public wharfinger, nor does it guarantee berths to vessels; and vessels reporting for loading or discharge

(when berthed) will be berthed at proper piers in their order of priority; the Charlotte Harbor and Northern Railway assumes no liability for demurrage to vessels, and all stevedoring (loading or discharge) will be subject to the rules or customs of the port of South Boca Grande, Fla.; charges for dockage of vessels will be in addition to the charges provided for in this tariff; and dockage charges will be assessed and collected by the Charlotte Harbor & Northern Railway in accordance with its local rules.

EXPLANATION OF THE TERM "HANDLING."

Item No. 3.—The term "handling" as used herein covers the labor or legitimate expense involved in the movement of the traffic between ship side and cars, or between ship side and warehouses located upon wharf properties.

INSURANCE.

Item No. 4.—The charges provided for herein do not include any expense of fire or storm insurance covering owners' interest in the property; nor will such insurance be effected by the Charlotte Habor & Northern Railway under its policies.

WEIGHING BULK FREIGHT.

Item No. 5.—For weighing bulk freight at request of owner or owner's agent, on platform or hand scales, 5 cents per ton of 2,000 pounds will be charged and collected.

MINIMUM CHARGE ON SMALL SHIPMENTS.

Item No. 6.—The minimum charge for wharfage, storage, and handling on single shipments will be 25 cents.

Item No.	Commodities.	Charges.
7	Articles not otherwise provided for (as per southern classification specifications for packing):	
	Wharfage	$0.01
	Wharfage and handling	.02
	Wharfage, handling, and storage for first 30 days, or fractional part thereof	.05
	Storage for each succeeding 30 days, or fractional part thereof	.02
	Storage for a period not to exceed 6 months, including wharfage and handling	.04
8	Bagging, in rolls or bales:	
	Wharfage and handling per 100 pounds	.05
	Wharfage, handling, and storage for first 30 days, or fractional part thereof, per 100 pounds	.05
	Storage for each succeeding 30 days, or fractional part thereof, per 100 pounds	.04
	Storage, including wharfage and handling, for period not exceeding 6 months, per 100 pounds	.08
9	Barrels, empty:	
	Wharfage, per barrel	.02
	Handling and storage for first 30 days, or fractional part thereof, per barrel	.02
	Dry barrels, handling and storage for first 30 days, or fractional part thereof, per barrel	.01
	Dry barrels, storage for each additional 30 days, or fractional part thereof, per barrel	.00
10	Brick, common, fire and pressed, in bulk:	
	Wharfage, per 1,000 brick	.20
	Handling, per ton of 2,000 pounds	.15
	Storage, per 1,000 brick, per month or part thereof	.10
11	Cedar slats, in cases:	
	Wharfage and storage for first 30 days, or fractional part thereof, per 100 pounds	.04
	Handling charges, additional, per 100 pounds	.04
	Storage for each succeeding 30 days, or fractional part thereof, per 100 pounds	.02
12	Cement:	
	Wharfage, handling, and storage, in barrels or bags, for first 30 days, or fractional part thereof, per 100 pounds	.01
	Storage for each succeeding 30 days, or fractional part thereof, per 100 pounds	.00
	Storage (including wharfage and handling), not to exceed a period of 6 months, per 100 pounds	.02
	Renewal storage for the succeeding 6 months, or fractional part thereof, per 100 pounds	.00
13	Coal, anthracite and blacksmith:	
	Wharfage and handling, per ton of 2,240 pounds—	
	Between vessels and cars	.4
	Between vessels and wharf	.55
	Wharfage, handling (between vessels and wharf), and storage for first 30 days, or fractional part thereof, per ton of 2,240 pounds	.8
	Storage for each succeeding 30 days, or fractional part thereof, per ton of 2,240 pounds	.05

Item No.	Commodities.	Charges.
14	Cottonseed meal, in sacks: Same as fertilizer, in sacks.	
	Wharfage, handling, and storage for first 30 days, or fractional part thereof, per 100 pounds	$0.01¾
	Storage for each succeeding 30 days, or fractional part thereof, per 100 pounds	.00¾
15	Cross ties:	
	Wharfage, including 30 days' storage, handling at owner's expense, per tie	.01
	Storage for the first 15 days thereafter, or fractional part thereof, per tie	.00½
	Storage for each succeeding 30 days, or fractional part thereof, per tie	.05
15½	Cross arms, staves, stave bolts, stave billets, laths, and box and barrel material:	
	Wharfage per 100 pounds	.00½
	Wharfage and handling, per 100 pounds	.01½
	Wharfage, handling, and storage for first 30 days, or fractional part thereof, per 100 pounds	.02
	Storage for each succeeding 30 days, or fractional part thereof, per 100 pounds	.00½
16	Fertilizer and fertilizer material, in sacks or barrels:	
	Wharfage and handling, per 100 pounds	.01
	Wharfage, handling, and storage for first 30 days, or fractional part thereof, per 100 pounds	.01½
	Storage for each succeeding 30 days, or fractional part thereof, per 100 pounds	.00½
17	Iron, pig: Wharfage and handling, per ton of 2,240 pounds	.25
18	Iron, scrap: Same as on rails and fastenings.	
19	Jute butts, in bales:	
	Wharfage and handling, per 100 pounds	.01
	Wharfage, handling, and storage for first 30 days, or fractional part thereof, per 100 pounds	.02
	Storage for each additional 30 days, or fractional part thereof, per 100 pounds	.00½
	Storage, including wharfage and handling, for period not exceeding 6 months, per 100 pounds	.03
20	Kaolin and other clays, in sacks, barrels, or casks: Wharfage and handling, in bags, barrels, or casks, or in bulk, per ton of 2,000 pounds	.30
21	Live stock, for Habana, Cuba:	
	Horses, in lots of less than 10 head, each	1.00
	Excess over 10 head, each	.25
	Cattle, shipped in cargoes by sailing vessel and handled through cattle pen, each	.15
22	Logs, for export: Wharfage and handling charges, per 100 pounds	.01
23	Lumber:	
	Wharfage, including 30 days' storage, handling at owner's expense, per 1,000 feet, board measure	.25
	Storage, each additional 30 days, or fractional part thereof, per 1,000 feet, board measure	.10
24	Naval stores:	
	Wharfage, when delivered to lighters or vessels, rosin or spirits, per barrel	.08
	For the first 30 days, or fractional part thereof, the storage and rolling charges on rosin will be, per barrel	.06
	On spirits of turpentine, per barrel	.07
	Handling rosin, per barrel	.03
	Handling spirits, per barrel	.04
	If the packages remain in store longer than 15 days after the expiration of the month in which they are received, they shall then be placed on renewal storage.	
	Renewal storage shall date from the first day of the month succeeding that in which packages are received.	
	This charge will be, on rosin, per barrel, per month or fractional part thereof	.03
	On spirits turpentine, per barrel, per month or fractional part thereof	.04
25	Oils, in barrels: Wharfage and handling, per barrel	.05
26	Phosphate rock:	
	For domestic cargoes—	
	Loading and trimming, per ton (2,240 pounds)	.20
	Wharfage, per ton (2,240 pounds)	.25
	Leveling for cotton, per ton (2,240 pounds)	.05
	For foreign cargoes—	
	Loading and trimming, per ton (2,240 pounds)	.25
	Wharfage, per ton (2,240 pounds)	.25
	Leveling for cotton, per ton (2,240 pounds)	.05
27	Pipe, cast iron: Per ton (2,000 pounds), same rate and conditions as on pig iron.	
28	Pulp:	
	Wharfage and handling, per 100 pounds	.01½
	Wharfage, handling, and storage for first 30 days, or fractional part thereof, per 100 pounds	.02½
	Storage for each additional 30 days, or fractional part thereof, per 100 pounds	.01
	Storage, including wharfage and handling, for a period not exceeding 6 months, per 100 pounds	.03
29	Rails and fastenings:	
	Wharfage, handling, and storage for 30 days, or fractional part thereof, per ton (2,240 pounds)	.50
	Wharfage and handling, per ton (2,240 pounds)	.30
	Storage for periods exceeding 30 days per month, per ton (2,240 pounds)	.10
30	Roofing gravel: Wharfage (owners to handle), per 100 pounds	.00¾
31	Salt:	
	Received in sacks or barrels—	
	Wharfage and handling	.01
	Wharfage, handling, and storage for first 30 days, or fractional part thereof	.01½
	Storage for each succeeding 30 days, or fractional part thereof	.00½

Item No.	Commodities.	Charge.
31	Salt—Continued.	
	Received in bulk and shipped in sacks—	
	Wharfage, sacking (owner or shipper to furnish sacks and twine), and handling	[illegible]
	Wharfage, sacking (owner or shipper to furnish sacks and twine), handling, and storage for first 30 days, or fractional part thereof	[illegible]
	Storage for each succeeding 30 days, or fractional part thereof	[illegible]
32	Shingles:	
	Wharfage (including 30 days' storage), handling at owner's expense, per 1,000 shingles	[illegible]
	Storage, each additional 30 days, or fractional part thereof, per 1,000 shingles	[illegible]
33	Stone: Wharfage, per ton (2,000 pounds) (handling at owner's expense)	[illegible]
34	Sugar:	
	Wharfage and handling	[illegible]
	Wharfage, handling and storage for first 30 days, or fractional part thereof	[illegible]
	Storage for each succeeding 30 days, or fractional part thereof	[illegible]
	Storage for a period not to exceed 6 months, including wharfage and handling	[illegible]
	Where established freight rates include wharfage, the above charges can not be added to the rates, and the handling and storage for the first 30 days, or fractional part thereof, will be	[illegible]
35	Tobacco, in hogsheads or tierces:	
	Wharfage and handling per 100 pounds	[illegible]
	Wharfage, handling, and storage for first 30 days, or fractional part thereof, per 100 pounds	[illegible]
	Storage for each additional 30 days or fractional part thereof, per 100 pounds	[illegible]
	Storage, including wharfage and handling, for a period not exceeding 6 months, per 100 pounds	[illegible]
36	Wood, cord: Wharfage, per cord	[illegible]

(*b*) Physical connection exists between the Charlotte Harbor & Northern Railway, the only railroad serving this locality, and the docks.

There is no contract between the railroad and water carriers providing for interchange of freight by prorating charges.

(*c*) The docks can be reached by wagon roads; the exact condition of same not known.

(*d*) The terminal facilities are sufficient for the needs of the locality.

(*a*) At Boca Grande: One small dock. Approach 500 by 5 feet, with a head 12 by 20 feet; wood; depth of water, 5 feet.

This dock is used by small boats making regular trips between Tampa and Punta Gorda, by fish boats, and by pleasure craft.

The dock is open to all boats on the same terms—no charge being made.

(*b*) There is no physical connection between the railroad and the dock.

No contract exists between the railroad and water carriers providing for the interchange of freight.

(*c*) A good shell road leads to this wharf.

(*d*) No additional terminals are required for this point.

SARASOTA BAY, FLA.

(*a*) At Venice there is a dilapidated boat landing; ownership not known. At Sarasota there are two piers, one built for 300 feet length from shore end, width 14 feet of concrete and for a farther length of 300 feet, width 100 feet, of wooden construction; owner, Dr. W. E. Hover, of Lima, Ohio. Boast drawing 6½ to 7 feet can

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

berth at wharf. The second pier is a wooden one, owned by the town of Sarasota and leased to the Tampa & Sarasota Transportation Co.

The piers at Sarasota are used by the Tampa & Sarasota Transportation Co. and the local boats.

On both piers at Sarasota there are sheds for storing and assorting freight. There are no mechanical appliances for handling freight.

The pier owned by Dr. W. E. Hover will be free to all boats except for those moving freight that arrives by rail. The pier owned by Sarasota and leased to the Tampa & Sarasota Transportation Co. is used by boats desiring to do so without charge.

(*b*) There is no physical connection between the piers and the Seaboard Air Line Railway, the only railway serving this point.

No contract is known to exist between the railroad and water carriers providing for interchange of traffic by prorating charges on traffic to be carried partly by water and partly by rail.

(*c*) Adequate highways lead to the wharf owned by Sarasota and will probably be provided for the pier owned by Dr. W. E. Hover, now nearing completion. There are no adequate highways to the wharf at Venice.

(*d*) This country is practically a frontier country and existing terminals are sufficient for its present needs.

MANATEE RIVER, FLA.

(*a*) At Palmetto: Pier 1,100 feet long; width 12 feet; head 120 feet by 75 feet; wood; depth of water 12 feet. Owner, W. W. Dormany.

Used by the Favorite Line steamers, small freight boats, launches, and pleasure craft.

There is a warehouse located on the pier for sorting and transfer of freight.

The pier is open to all boats on the same terms.

Wharfage charges are made for freight passing over the pier. The rates not known.

(*b*) Physical connection between the railroad and the pier exists.

No contract exists for the interchange of freight between rail and water transportation.

(*c*) Improved and adequate highways lead to the pier.

(*d*) The water terminals are sufficient for this locality.

(*a*) At Bradentown: Pier 800 feet long; 14 feet wide; head of pier 150 feet by 150 feet; wood; depth of water 12 feet.

Used by the Favorite Line steamers, small freight boats, launches, and pleasure craft.

There is a warehouse on the pier for the sorting and transfer of freight.

The pier is open to the use of all boats on equal terms.

A charge is made for freight passing over this dock.

(*b*) No physical connection exists between the railroad and the pier.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

No contract exists for the interchange of freight between rail and water transportation.

(*c*) Improved and adequate highway leads to the pier.

(*d*) No additional terminals are required for this locality.

(*a*) At Manatee: Pier 1,800 feet long; 12 feet wide, with head 200 feet by 150 feet; wood; depth of water 12 feet. Owner, Manatee Bridge Co.

This pier is used by the Favorite Line steamers, small freight boats, launches, and pleasure craft.

The pier has a warehouse for sorting and storage of freight.

Open to all boats on the same terms.

No charge is made for use of pier to boats, but a charge is made for the transfer of freight over pier. Wharfage charges not known.

(*b*) No physical connection exists between the railroad and the pier.

No contract is known to exist between the water and rail transportation companies.

(*c*) Improved and adequate highway leads to the pier.

(*d*) No additional water terminals are required for this locality.

(*a*) At Ellenton: Pier 1,830 feet by 10 feet; head 135 feet by 75 feet; wood; depth of water 6 feet. Owner, Favorite Line of steamers.

Used by Favorite Line steamers, small freight boats, launches, and pleasure craft.

There is a warehouse on this pier for the sorting and transfer of freight.

This pier is open to all boats on equal terms.

No charge for boats, but wharfage charge is made for freight transferred over same.

(*b*) No physical connection exists between the railroad and the pier.

No contract exists between the rail and water transportation companies.

(*c*) Improved and adequate highway leads to the pier.

(*d*) No additional water terminals are required at this locality.

TAMPA BAY, FLA.

(*a*) At Port Tampa. One slip 2,600 feet long by 230 feet wide.

In the shore end for 3,000 feet the sides of slips are wooden bulkheads with earth backing. The outer ends of slip for 500 feet are wooden pier construction with piling protected by terra-cotta pipes. Depth of water, 20 to 24 feet. One V-shaped slip 380 feet long, width inner end 20 feet, outer end 180 feet. Wooden piers form sides of slip. Depth of water, 22 feet. One wharf 480 feet, wood. Depth of water, 16 to 24 feet. The terminals are owned by the Atlantic Coast Line Railway Co.

Used by the Atlantic Coast Line Railway, the Peninsula & Occidental Steamship Co. and steamers engaged in phosphate shipping.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

The terminals have three phosphate elevators, sheds for storage of freight, and coal bins.

The terminals are open to the use of the public.

Wharfage charges approved by the Secretary of War are as per attached sheet.

(*b*) Physical connection exists between the Atlantic Coast Line Railway, the only railroad serving this locality, and these terminals.

Contracts are supposed to exist for interchange of traffic between the Atlantic Coast Line Railway and the Peninsula & Occidental Steamship Co.

(*c*) Improved highways lead to the shore end of the terminals.

(*d*) The terminals are adequate for the needs of the locality.

[Circular No. D-2035.—Cancels Circular No. D-1938. I. C. C. No. 5152.—Cancels I. C. C. No. 4878.]

ATLANTIC COAST LINE RAILROAD CO.,
FREIGHT TRAFFIC DEPARTMENT,
Wilmington, N. C., September 26, 1906.

WHARFAGE, STORAGE, AND HANDLING CHARGES AT PORT TAMPA, FLA.

Effective September 26, 1906, the Atlantic Coast Line Railroad Co., on traffic to and from points in the territory on and east of the main line of the Mobile & Ohio Railroad and on and south of the Memphis division of the Southern Railway, will charge and collect the following wharfage, storage, and handling rates in addition to the transportation rates (except that it is optional with it as to whether or not it will store freight) on property hereinafter described, passing over the wharves or stored in the warehouses owned or controlled by it, to wit:

Bagging, in rolls or bales.—Wharfage, handling from or to shipside, and storage for first 30 days, or fractional part thereof, per 100 pounds, 2½ cents.

Storage for each succeeding 30 days or fractional part thereof, per 100 pounds, one-half cent.

Storage, including wharfage and handling, for period not exceeding six months, per 100 pounds, 3 cents.

Wharfage and handling direct from vessels to cars, per 100 pounds, 1½ cents.

Barrels, empty.—Handling and storage for first 30 days or fractional part thereof, per barrel, 2 cents.

Storage for each additional 30 days or fractional part thereof, per barrel, 1 cent.

Dry barrels, handling and storage for first 30 days or fractional part thereof, per barrel, 1 cent.

Dry barrels, storage for each additional 30 days or fractional part thereof, per barrel, one-half cent.

Billets, steel.—Per ton, 2,240 pounds, same rate and conditions as on pig iron.

Binder's twine, in bundles or bales.—Wharfage and handling direct from vessel's side to cars, per 100 pounds, 2 cents.

Wharfage, handling, and storage for first 30 days or fractional part thereof, per 100 pounds, 2½ cents.

Storage, including handling, for each succeeding 30 days or fractional part thereof, per 100 pounds, one-half cent.

Bowlder rock, uncrushed.—For foreign and domestic cargoes:

Loading and trimming, per ton, 2,240 pounds, 45 cents.

Wharfage, per ton, 2,240 pounds, 25 cents.

Leveling for cotton, per ton, 2,240 pounds, 5 cents.

On cargoes consisting partly of crushed and partly of bowlder rock the charges for loading and trimming of the entire cargo will be made on basis of uncrushed bowlder rock.

Brick, common, fire, and pressed, in bulk.—Wharfage, per 1,000 brick, 20 cents.

Handling from ship side to cars or warehouse, alongside wharf, per ton, 2,000 pounds, 15 cents.

(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

Storage, per 1,000 brick, per month or part thereof, 10 cents.

Cedar slats, in cases.—Wharfage and storage for first 30 days or fractional part thereof, per 100 pounds, 1 cent.

Handling charges to or from ship side, additional, per 100 pounds, one-half cent.

Storage for each succeeding 30 days or fractional part thereof, per 100 pounds, one-fourth cent.

Cement.—Wharfage, handling (from or to ship side), and storage, in barrels or bags, for first 30 days or fractional part thereof, per 100 pounds, 1 cent.

Storage for each succeeding 30 days, or fractional part thereof, per 100 pounds, one-half cent.

Storage (including wharfage and handling), not to exceed a period of six months, per 100 pounds, 2 cents.

Renewal storage for the succeeding six months or fractional part thereof, per 100 pounds, three-fourths cent.

Wharfage and handling direct from vessels to cars or cars to vessels (including carrier's barges), in barrels or bags, per 100 pounds, three-fourths cent.

Coal, anthracite and blacksmith.—Wharfage and handling from vessels to cars, per ton, 2,240 pounds, 40 cents.

Wharfage and handling from vessels to wharf, per ton, 2,240 pounds, 35 cents.

Wharfage, handling from vessels to wharf, and storage for first 30 days or fractional part thereof, per ton, 2,240 pounds, 40 cents.

Storage for each succeeding 30 days or fractional part thereof, per ton, 2,240 pounds, 5 cents.

Cotton.—Wharfage and transfer from cars to ship side, per 100 pounds, 3 cents.

Cotton-factory sweepings, linters, and regins.—Wharfage and transfer from cars to ship side, per 100 pounds, 2 cents.

Cottonseed meal, in sacks.—Same as fertilizer, in sacks.

Cotton seed, in sacks.—Wharfage and handling from cars to ship side, per 100 pounds, 1¼ cents.

Wharfage, handling, and storage for first 30 days or fractional part thereof, per 100 pounds, 1¾ cents.

Storage for each succeeding 30 days or fractional part thereof, per 100 pounds, three-fourths cent.

Cotton ties.—Wharfage and handling from ship side and storage for season ending October 31 of each year or any part thereof, per 100 pounds, 2½ cents.

Renewal storage for the following season or fractional part thereof, per 100 pounds, 1 cent.

Wharfage and handling from ship side (including carrier's barges), when transferred direct from ship to cars, per 100 pounds, 1¼ cents.

Crossties.—Wharfage, including 30 days' storage, handling at owner's expense, per tie, 1 cent.

Storage, each additional 30 days or fractional part thereof, per tie, one-half cent.

Fertilizer and fertilizer material (including land plaster).—Received in sacks and barrels:

Wharfage and handling from ship side (including carrier's barges), direct to cars, per 100 pounds, 1 cent.

Wharfage, handling from ship side (including carrier's barges), and storage for first 30 days or fractional part thereof, per 100 pounds, 1½ cents.

Storage for each succeeding 30 days or fractional part thereof, per 100 pounds, one-half cent.

NOTE.—The total charge for storage, including wharfage and handling for each season ending April 30, per 100 pounds, 2½ cents.

Renewal storage for following season, or fractional part thereof, per 100 pounds, 1½ cents.

Received in bulk and shipped in sacks or barrels:

Wharfage, sacking (owner or shipper to furnish sacks and twine), and handling from shipside (including carrier's barges), direct to cars, per 100 pounds, 2 cents.

Wharfage, sacking (owner or shipper to furnish sacks and twine), and handling from shipside (including carrier's barges), and storage for first 30 days or fractional part thereof, per 100 pounds, 2½ cents.

Storage for each succeeding 30 days or fractional part thereof, per 100 pounds, one-half cent.

NOTE.—The total charge for storage, including wharfage, handling, and sacking (owner or shipper to furnish sacks and twine), for each season ending April 30, per 100 pounds, 8 cents.

Renewal storage for following season, or fractional part thereof, per 100 pounds, 1½ cents.

Received in bulk and shipped in bulk:

Wharfage and handling from shipside (including carrier's barges), direct to cars, per 100 pounds, 1¼ cents.

Wharfage and handling from shipside (including carrier's barges), and storage for first 30 days or fractional part thereof, per 100 pounds, 2 cents.

Storage for each succeeding 30 days or fractional part thereof, per 100 pounds, one-half cent.

NOTE.—The total charge for storage, including wharfage and handling for each season ending April 30, per 100 pounds, 2½ cents.

Renewal storage for the following season or fractional part thereof, per 100 pounds, 1½ cents.

Iron, pig.—Wharfage and handling, per ton 2,240 pounds, 25 cents.

NOTE.—The above charges will not be added to rates published to shipside. When pig iron for eastern points is held at the ports at the request of the consignees, a charge of 12½ cents per ton of 2,240 pounds will be made for storage for each 30 days or fractional part thereof, after the expiration of 20 days, dating from notice of arrival. (Sundays and legal holidays excepted in computing the full time).

These charges are intended to apply on shipments when intended for sail vessels or barges beyond the port.

Iron, scrap.—Same as on rails and fastenings.

Jute butts, in bales.—Wharfage and handling direct from vessel's side to cars, per 100 pounds, 1 cent.

Wharfage, handling and storage for first 30 days or fractional part thereof, per 100 pounds, 2 cents.

Storage for each additional 30 days, or fractional part thereof, per 100 pounds, one-half cent.

Storage, including wharfage and handling, for period not exceeding six months, per 100 pounds, 3 cents.

Kaolin and other clays.—Wharfage and handling, in bags, barrels, or casks, or in bulk, per ton 2,000 pounds, 30 cents.

Live stock, for Habana, Cuba.—Horses, in lots of less than 10 head, via P. & O. S. S. Co., $1 each.

Excess over 10 head, 25 cents each.

Cattle, shipped in cargoes by sail vessel and handled through cattle pen, 15 cents each.

Logs, for export.—Wharfage and handling charges, per 100 pounds, 1 cent.

Lumber.—Wharfage, including 30 days' storage, handling at owner's expense, per 1,000 feet, board measure, 25 cents.

Storage, each additional 30 days, or fractional part thereof, per 1,000 feet, board measure, 10 cents.

Marble dust and wall plaster.—Wharfage, handling (from or to shipside), and storage, in barrels or bags, for first 30 days, or fractional part thereof, per 100 pounds, 1½ cents.

Storage for each succeeding 30 days, or fractional part thereof, per 100 pounds, one-half cent.

Storage (including wharfage and handling), not to exceed a period of six months, per 100 pounds, 2½ cents.

Renewal storage for the succeeding six months, or fractional part thereof, per 100 pounds, 1 cent.

Wharfage and handling direct from vessels to cars, or cars to vessels (including carrier's barges), in barrels or bags, per 100 pounds, 1 cent.

Naval stores.—Wharfage, when delivered to lighters or vessels, rosin or spirits, per barrel, 3 cents.

For the first 30 days, or fractional part thereof, the storage and rolling charges on rosin will be, per barrel, 6 cents.

On spirits of turpentine, per barrel, 7 cents.

Handling rosin, per barrel, 3 cents.

Handling spirits, per barrel, 4 cents.

If the packages remain in store longer than 15 days after the expiration of the month in which they are received, they shall then be placed on renewal storage.

Renewal storage shall date from the first day of the month succeeding that in which packages are received.

This charge will be, on rosin, per barrel, per month or fractional part thereof, 8 cents.

On spirits turpentine, per barrel, per month or fractional part thereof, 4 cents.

Oils, in barrels.—Wharfage and handling, per barrel, 5 cents.

Phosphate rock (from Winston and Bone Valley Branch).—For domestic cargoes:

Loading and trimming, per ton 2,240 pounds, 20 cents.

Wharfage, per ton 2,240 pounds, 25 cents.

Leveling for cotton, per ton 2,240 pounds, 5 cents.

For foreign cargoes:

Loading and trimming, per ton 2,240 pounds, 25 cents.

Wharfage, per ton 2,240 pounds, 25 cents.

Leveling for cotton, per ton 2,240 pounds, 5 cents.

Phosphate rock, hard.—For foreign and domestic cargoes, crushed to egg size (not applicable on bowlder rock, not crushed): Loading and trimming, per ton 2,240 pounds, 25 cents.

Wharfage, per ton 2,240 pounds, 25 cents.

Leveling for cotton, per ton 2,240 pounds, 5 cents.

Pipe, cast iron.—Per ton 2,000 pounds, same rate and conditions as on pig iron.

Pulp.—Wharfage and handling direct from vessel's side to cars, per 100 pounds, 1½ cents.

Wharfage, handling and storage for first 30 days, or fractional part thereof, per 100 pounds, 2½ cents.

Storage for each additional 30 days or fractional part thereof, per 100 pounds, 1 cent.

Storage, including wharfage and handling, for a period not exceeding six months, per 100 pounds, 3 cents.

Rails and fastenings.—Wharfage, handling from vessel's side and storage for 30 days, or fractional part thereof, per ton 2,240 pounds, 50 cents.

Wharfage and handling direct from vessel's side to cars, per ton 2,240 pounds, 30 cents.

Storage for periods exceeding 30 days, per month, per ton of 2,240 pounds, 10 cents.

Roofing gravel.—Wharfage (owners to handle), per 100 pounds, three-fourths cent.

Salt.—Received in sacks or barrels:

Wharfage and handling from shipside (including carrier's barges), and storage for first 30 days, or fractional part thereof, per 100 pounds, 1½ cents.

Storage for each succeeding 30 days, or fractional part thereof, per 100 pounds, one-half cent.

NOTE.—The total charge for wharfage, handling, and storage for a period not exceeding 12 months to be, per 100 pounds, 2½ cents.

Wharfage and handling from shipside (including carrier's barges), when shipped direct from shipside, per 100 pounds, 1 cent.

Received in bulk and shipped in sacks:

Wharfage, sacking (owner or shipper to furnish sacks and twine), handling and storage for first 30 days, or fractional part thereof, per 100 pounds, 2½ cents.

Storage for each succeeding 30 days, or fractional part thereof, per 100 pounds, one-half cent.

NOTE.—The total charge for wharfage, sacking, handling, and storage for a period not exceeding 12 months to be, per 100 pounds, 3 cents.

Wharfage, sacking (owner or shipper to furnish sacks and twine), and handling from shipside (including carrier's barges), when shipped direct from shipside, per 100 pounds, 2 cents.

Sassafras root, in bulk.—Wharfage and handling, per ton 2,000 pounds, 75 cents.

Shingles.—Wharfage (including 30 days' storage), handling at owner's expense, per 1,000 shingles, 5 cents.

Storage, each additional 30 days, or fractional part thereof, per 1,000 shingles, 2½ cents.

Staves, stave bolts, and stave billets.—Wharfage and handling charges to and from shipside direct, per 100 pounds, three-fourth cent.

Wharfage and storage for first 30 days or fractional part thereof, per 100 ounds, 1 cent.

Wharfage and handling charges to or from shipside, and storage for first 0 days or fractional part thereof, per 100 pounds, 1½ cents.

Storage for each succeeding 30 days, or fractional part thereof, per 100 pounds, ne-fourth cent.

Stone.—Wharfage, per ton 2,000 pounds, (handling at owner's expense), 5 ents.

Sugar.—Wharfage, handling and storage, for first 30 days, or fractional art thereof, per 100 pounds, 3 cents.

Storage, including wharfage and handling, for each succeeding 30 days, or ractional part thereof, per 100 pounds, 1 cent.

Storage for a period not to exceed six months, including wharfage and hanling, per 100 pounds, 4 cents.

Where the regularly established rates cover wharfage, the above charges an not be added to the rates, but the handling and storage for the first 30 ays, or fractional part thereof, shall be, per 100 pounds, 2 cents.

Transfer direct from vessels to cars, per 100 pounds, 1½ cents.

Tobacco, in hogsheads or tierces.—Wharfage and handling direct from vessel's ide to cars, per 100 pounds, 1 cent.

Wharfage, handling and storage for first 30 days or fractional part thereof, er 100 pounds, 2 cents.

Storage for each additional 30 days or fractional part thereof, per 100 ounds, one-half cent.

Storage, including wharfage and handling, for a period not exceeding six onths, per 100 pounds, 3 cents.

Wood, cord.—Wharfage, per cord, 10 cents.

Merchandise, not provided for, packed.—Wharfage and handling direct from essel's side to cars, per 100 pounds, 2 cents.

Wharfage, handling, and storage for the first 30 days or fractional part hereof, per 100 pounds, 3 cents.

Storage, including wharfage and handling, for each succeeding 30 days or ractional part thereof, per 100 pounds, 1 cent.

Minimum charge on small shipments.—Minimum charge on single shipments, 5 cents.

The term "handling" as used herein means the labor or legitimate expense nvolved in the movement of the goods between the ship side and the storeouses or the cars.

The charges provided for herein do not include any expense of fire or storm nsurance covering owner's interest in the property; nor will such insurance be ffected by the transportation companies under their policies.

The minimum wharfage, storage, and handling charges shown herein will not pply on local port traffic delivered to or received from water craft loading or lischarging at railroad or steamship wharves, but on such traffic the local egulations at each port shall govern, it being understood that the term "local ort traffic" covers traffic having its origin or destination within the limits of he ports, and traffic which simply passes over the terminals of the railroads r steamship lines.

Approved by James Menzies, general freight agent, second division, Savannah, a.; and by J. W. Perrin, general freight agent, first division, Wilmington, . C.

Issued by C. McD. Davis, assistant general freight agent, Wilmington, N. C.

R. A. Brand, freight traffic manager, Wilmington, N. C.

Authority File No. 347.

T. PETERSBURG RIVER AND HARBOR, FLA. PRELIMINARY REPORT.

(*a*) There are no terminals on the harbor to be improved by the Jnited States.

There are two long piers north of Bayboro Harbor, one belonging o the Atlantic Coast Line Railway and one belonging to the street ailway company of St. Petersburg.

(a) General location and description.

These piers are open to any boats desiring to use them, but it is understood that freight can only be landed there when it is to be delivered from the piers by the Atlantic Coast Line road or the street railway company, whose charges for the piers are said to be very exorbitant.

(*b*) The tracks of the Atlantic Coast Line Co. extend out over their pier, likewise the tracks of the street railway company.

There is no provision made for interchange of traffic between the railroad and the water carriers.

(*c*) Adequate highways lead to these wharves.

(*d*) Terminal facilities at this point are not adequate. A frontage of 600 feet should be obtained on Bayboro Harbor and a modern wharf be constructed thereon, and connection made with the Atlantic Coast Line Railroad. Provision should also be made for considerable extension of terminal facilities.

ST. PETERSBURG, FLA. FINAL REPORT.

(*a*) At St. Petersburg:

Pier, 735 by 50 feet; wood; depth of water at head, 8 feet. Owner, city of St Petersburg.

Pier, 2,460 by 75 feet; wood; depth of water at head, 12 feet. Owner, Atlantic Coast Line Railroad.

Pier, 1,800 by 70 feet; wood; depth of water at head, 8 feet. Owner, —. — Tomlinson.

The city dock and Tomlinson dock are used by the bay steamers plying between Tampa, St. Petersburg, Manatee River, Passa-a-Grille, and Sarasota. The Atlantic Coast Line Railroad dock is used by the Peninsula & Occidental Steamship Co.'s freight boats handling freight to the railroad.

The city wharf has a warehouse for the storage and transfer of freight. The other two piers have sheds.

The city dock is open to all boats; terms and conditions of use not known.

(*b*) Physical connection exists between the Atlantic Coast Line Railroad and the Atlantic Coast Line dock.

No contracts exist between the water carriers and the railroad companies except with boats that run in connection with the Atlantic Coast Line Railroad, and it is understood that there are some restrictions imposed by the Atlantic Coast Line Railroad for the interchange of freight between the railroad and the other water transportation companies touching at this point.

(*c*) Improved and adequate highways lead to the piers.

(*d*) Terminal facilities at this point are not adequate. A frontage of 600 feet should be obtained on Bayboro Harbor and a modern wharf be constructed thereon and connection made with the Atlantic Coast Line Railroad. Provision should also be made for considerable extension of terminal facilities. The piers now constructed at St. Petersburg are not located where the contemplated improvements of the harbor by the Government are to be made.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

HILLSBORO BAY, FLA.

(*a*) Under that portion of Hillsboro Bay known as Hendry & Knight Channel there are wharves on the north side belonging to Hendry & Knight and on the south side belonging to the Seaboard Air Line Railway.

The Hendry & Knight wharves are leased to private concerns, among them the Mallory Steamship Co. These wharves are not open to the use of boats other than those belonging to or controlled by the lessee of these wharves.

The wharves consist of a lumber wharf and wharves for handling general merchandise. The latter wharves have sheds upon them.

The Seaboard Air Line wharves consist of lumber and coal wharves, and are used only by vessels bringing freight for or taking freight from the Seaboard Air Line Railway. South of these wharves, near the south end of Seddon Island, is located a phosphate elevator belonging to the Seaboard Air Line Railway. At this elevator phosphate is transferred from freight cars to ships.

Near the mouth of the Hillsboro River there is another wharf belonging to the Seaboard Air Line Railway and one known as Mugges's Wharf. Both of these wharves are in a more or less dilapidated condition, and are open to the use of any ships desiring to use them.

Above these wharves the Hillsboro River is bordered by warehouses with landings on the river and a railroad on the other side.

At Tampa there are 28 wharves.

Number.	Length.	Kind.	Depth of water.	Owner.
	Feet.		*Feet.*	
1	200	Wooden pile	7	Hillsboro Dredging Co.
1	100	do	6	Tampa Steam Ways Co.
1	200	do	7	Gulf Refining Co.
1	200	do	6	Standard Oil Co.
1	300	do	9	Southern Lumber Co.
1	115	do	12	L. J. Jones.
1	115	do	12	Consolidated Grocery Co.
1	220	do	12	Favorite Line Steamboat Co.
1	60	Concrete wall	12	City of Tampa.
1	65	Wooden pile	12	J. Q. Brantley Grocery Co.
1	52	do	12	Parkins-Sharp & Co., lessees.
1	58	do	12	Hendry & Knight.
1	67	do	12	Snow & Bryan.
1	60	Concrete wall	12	City of Tampa.
1	133	Wooden pile	12	J. B. Seckinger.
1	26	do	12	John Savarese.
1	52	do	12	W. C. Richardson.
1	102	do	12	Gulf Export Co.
1	40	Steel sheet pile	12	Tampa Foundry & Machine Co.
1	469	Wooden pile	13	Seaboard Air Line Ry.
1	127	do	13	T. C. Taliaferro.
1	145	do	13	R. Mugge.
1	167	do	13	Lykes Bros.
1	2,550	do	18-24	Hendry & Knight.
1	1,600	do	22	Seaboard Air Line Ry.
1	425	do	22	Do.
1	600	do	22	Do.
1	1,000	do	18-22	Do.

One slip 60 feet wide, 6 feet deep; depth of water, 12 feet; owner, Tampa Foundry & Machine Co.

(*a*) General location and description.

The wharves are used by the Mallory Steamship Line, the Seaboard Air Line Railway, Atlantic Coast Line Railway, Favorite Line steamers, Tampa & Sarasota Line steamers, boats engaged in phosphate and lumber shipping, and small craft engaged in coastwise trade and fishing.

The wharves owned by L. J. Jones, Consolidated Grocery Co., J. Q. Brantley, Perkins-Sharp & Co., Hendry & Knight, Snow & Bryan, J. B. Seckinger, John Savarese, and Seaboard Air Line Railway have warehouses for the storage of freight. The wharves of the Standard Oil Co. and the Gulf Refining Co. have tanks for storing oil and pumps for filling and discharging tanks. The slip owned by the Tampa Foundry & Machine Co. has steel sheer legs. One of the Seaboard Air Line wharves has phosphate elevator.

There are no wharfage charges for use of the following wharves: Tampa Steam Ways, Snow & Bryan, City of Tampa, J. B. Seckinger, Hendry & Knight, and Seaboard Air Line Railway. The following freight charges are paid by owners of cargoes to lessees or owners of Hendry & Knight and Seaboard Air Line Railway wharves: Lumber, 25 cents per M, b. m.; rosin, 3 cents per barrel; railroad iron, 20 cents per ton; phosphate, 25 cents per ton; coal, 15 cents per ton; cement, 15 cents per ton.

(*b*) All the wharves mentioned above are connected with railroad lines serving Tampa. No contracts are believed to exist providing for the interchange of freight between the water carriers and the railroads by prorating charges on freight to be carried partly by water and partly by rail. It is, however, believed that agreements exist providing that water carriers will not take freight from Tampa to points on the east coast. It is at least claimed by shippers that they can not ship freight by water to eastern points.

(*c*) Improved and adequate highways to the terminals exist.

(*d*) The terminal facilities of Tampa are not sufficient, and it is essential that the city make use of the 1,400 feet of water-front property on Ybor Estuary to build a modern and up-to-date terminal.

HILLSBORO RIVER, FLA.

See report on Hillsboro Bay.

CLEARWATER HARBOR, BOCA CEIGA BAY, FLA.

(*a*) There are no terminals along this waterway and only a few landings suitable for small launches. There is a pier at Clearwater which could be used for handling light freight.

Used only for pleasure craft and small sailing vessels.

(*b*) These landings are not connected with the railroad.

No contracts exist between rail and water carriers.

(*c*) As a rule highways do not lead to the landings, although at Clearwater the highway leads to the pier at that point.

(*d*) Existing terminal facilities are adequate for this locality.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

ANCLOTE RIVER, FLA.

(*a*) At Tarpon Springs. There are wharves owned by the Sponge Exchange. These wharves have a frontage on the river of about 200 feet, and will allow boats drawing 3½ feet to lie alongside.

The wharves are used for the sponge and fish industry.

There are fish houses upon the wharves.

The wharves are open to the use of all boats desiring to use them. No charges are made.

(*b*) There is no physical connection between the wharves and the railroad.

No contracts exist between the railroad and water carriers.

(*c*) Adequate highways lead to the wharves.

(*d*) The wharves are sufficient for the needs of the locality.

CRYSTAL RIVER, FLA.

(*a*) There are two docks at this locality. One, a railroad dock, in a dilapidated condition and out of use. The second dock is a small wooden structure owned by the city.

The dock is used by fish boats and pleasure launches.

The dock has a warehouse on it.

The dock is open to the use of all boats on equal terms. No charge is made for the use of same.

(*b*) Physical connection exists between the railroad and this dock.

No contracts exist between the rail and water carriers for the interchange of traffic.

(*c*) Adequate highway leads to the end of this dock.

(*d*) The water terminals are ample for this locality.

WITHLACOOCHEE RIVER, FLA.

(*a*) At Port Inglis there are two small wooden docks 12 by 50 feet and 20 by 50 feet, owned by Port Inglis Terminal Co. Depth of water in channel, 10 feet. At Inglis there is a small wooden wharf, depth of water in river 15 feet, and phosphate slip owned by Standard & Hernandez Railroad.

Wharves used by small craft and towboats.

On the dock at Port Inglis there is a crane for handling cargoes. At Inglis there is a steel railroad bridge over slip for loading phosphate from cars to barges.

The wharves are open to all boats on equal terms.

No charge for use of wharves.

(*b*) At Port Inglis there is no railroad. At Inglis there is physical connection between the wharf and railroad.

No contract is known to exist between the railroad and water carriers providing for interchange of traffic by prorating charges on traffic to be carried partly by water and partly by rail.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

(*c*) Adequate highways lead to wharf at Inglis, but no highways lead to wharves at Port Inglis.

(*d*) The Withlacoochee River is not at the present time available for navigation purposes except below Inglis, and there is, therefore, no need of any terminals other than those now existing.

SUWANNEE RIVER, FLA.

(*a*) At Wannee:

Wharf, 1,488 feet long; wood; depth of water along wharf, 8½ feet; owner, Seaboard Air Line Railway.

At Old Town:

Wharf, 46 feet long; wood; depth of water along wharf, 12 feet; owner, Atlantic Coast Line Railway.

At Branford:

Incline railway for the transfer of freight; owner, Atlantic Coast Line Railway.

These wharves are used by one freight boat on the river and by a few launches.

The wharves at Old Town and Branford have mechanical appliances for handling freight.

The wharves are owned by the railroads, but probably open to the use of any boats desiring to use them. Terms of use not known.

(*b*) Physical connection exists between the railroads and wharves at Wannee, Old Town, and Branford.

No contracts are known to exist between the rail and water carriers, although the one freight boat operating on the river brings freight to all railroad docks.

(*c*) Highways lead to the wharves, but are unimproved. Probably sufficient for the needs of the locality.

(*d*) The terminal facilities are ample for the needs of the locality.

CEDAR KEYS, FLA.

(*a*) At Cedar Keys there are the following wharves:

Wharf, 300 feet long; wood; depth of water at head, 3 feet; owner, Seaboard Air Line Railroad.
Wharf, 55 feet long; wood; depth of water at head, 3 feet; owner, not known.
Wharf, 80 feet long; wood; depth of water at head, 2 feet; owner, not known.

These wharves are used by fishing boats, launches, and small freight boats.

The wharves have fish and freight houses upon them.

The conditions for the use of the docks are not known.

(*b*) Physical connection exists between the wharves and the Seaboard Air Line Railroad, the only railroad serving this locality.

No contracts are known to exist between rail and water carriers.

(*c*) Highways lead to the end of these wharves.

(*d*) The water terminals are considered sufficient for this locality.

(*a*) General location and description.
(*b*) Physical connection between water terminals and railroads.
(*c*) Connection with highways.
(*d*) Necessity for water terminals.

REPORT OF MAJ. E. I. BROWN, CORPS OF ENGINEERS, IN CHARGE OF THE MONTGOMERY, ALA., DISTRICT.

CARRABELLE HARBOR, FLA.

There is no wharf proper. Boat landings are built along the water front on piles bulkheaded and filled in. These are used only by trading steamers plying between Pensacola, Mobile, and Carrabelle. So far they have served the purpose, and no better facilities are thought necessary.

APALACHICOLA BAY, FLA.

There are no wharves at this point, simply small landings for river-boat traffic. These landings are built along the water front on piles bulkheaded and filled in. They answer the purpose and no better facilities are required.

APALACHICOLA RIVER, FLORIDA.

WHARF AT RIVER LANDING, FLA.

General location.—Situated about 1¼ miles west of River Junction, Fla., on the east bank of river, also about 1 mile below the mouth of Flint River.

Description.—There is no wharf at this point, natural landing being used in connection with warehouse building erected on trestle work, also railroad track paralleling the bank is built on trestle work.

Extent and method of use.—Freight is handled to and from boat by a double-track hoist, and loaded or unloaded from railway direct into warehouse or on platform. The facilities are not taxed to their fullest extent, although a large through business is done at this point. The Seaboard Air Line Railway owns this terminal.

General efficiency.—The method used is efficient, and covers all present requirements.

Terms and conditions.—Open to all carriers on equal terms. A transfer charge of from 2 cents to 5 cents per 100 pounds is made against different classified commodities.

Physical connections.—The tracks of the Seaboard Air Line Railway connect with this terminal.

Contract for interchange of commerce.—None known.

Connection by highways.—No improved highways connect with this terminal.

Necessity for additional facilities.—No additional facilities are deemed necessary.

WHARF AT BLOUNTSTOWN, FLA.

General location.—Landing located on left bank of river, in Calhoun County, approximately 1 mile from Blountstown.

Description.—There is no wharf, simply a natural landing, provided with warehouse 50 feet above river. There are no mechanical

handling facilities. A spur track from the Marianna & Blountstown Railway runs alongside this warehouse.

Extent and method of use.—Freight is loaded and unloaded by day labor. The wharf is not used very extensively.

Terms and conditions.—Open to all carriers on equal terms.

Physical connections.—The rails of the Marianna & Blountstown Railway connect with this wharf.

Contract for interchange of traffic.—None known.

Connection by highways.—No improved highways connect with this terminal.

Necessity for additional facilities.—Present facilities appear to be sufficient.

CYPRESS LUMBER CO.'S WHARF, APALACHICOLA.

General location.—This wharf is located on the northeast side of the city of Apalachicola, on an arm of the Apalachicola River, separated from the main river by low flats. This slip or bayou has an average width of about 175 feet. Owned by the Cypress Lumber Co.

Description.—This terminal is principally a lumber dock. The foundation is piling, with framework on canal side 2,000 feet long, extending back on an average of 200 feet. On the east side of slip there is a dock of piling and framework 700 feet long. On the north end of this dock are located nine frame houses, 20 feet by 40 feet, for storing dressed lumber and shingles. On the west side of slip is located a large sawmill, with numerous houses and trams necessary for operating the plant. The average depth of water in this slip is 10 feet at mean low water. Provided with electric lights and city water, also separate water-works system for fire protection, using river water. The Apalachicola-Northern Railway has a siding extending through the property to the water front, and considerable timber is hauled over this road to the mill and lumber shipped by rail, but the bulk of the output of this mill is shipped by water—coastwise and foreign.

Extent and method of use.—This wharf is used exclusively by the Cypress Lumber Co. Lumber is lightered from the docks to vessels in the bay.

General efficiency.—The methods used are very efficient.

Terms and conditions.—None.

Physical connections.—The rails of Apalachicola Northern Railway connect with this wharf.

Contract for interchange of traffic.—None known.

Connection by highways.—A poorly constructed shell road connects with this terminal.

Necessity for additional facilities.—Present facilities answer all requirements.

GULF REFINING CO.'S WHARF AT APALACHICOLA.

General location.—Situated in northern part of Apalachicola, south of the Cypress Lumber Co.'s plant. Owned by the Gulf Refining Co.

Description.—Has a frontage of 79 feet, with a platform 16 feet wide, filled back of platform with shells. Storeroom 20 feet by 4 feet, and three storage tanks. There is 7 feet of water in front of

dock. The platform is built on piling with framework. This dock is equipped with water and electric lights. Gasolene and oils are delivered by oil boats and pumped into the tanks by boats. It is then delivered to consumers by gravity.

Extent and method of use.—The principal consumers are gasolene launches. There is a pipe line from self-measuring tank to the edge of wharf, and oils and gasolene delivered from this by rubber hose to consumers.

General efficiency.—Very good.

Terms and conditions.—Wharf is free to all consumers.

Physical connections.—Connects with rails of Apalachicola Northern Railway.

Contract for interchange of commerce.—None known.

Connection by highways.—Shell roads of poor construction connect with this terminal.

Necessity for additional facilities.—The present facilities at this terminal are sufficient.

SHINGLE WHARF, APALACHICOLA.

General location.—South of the Gulf Refining Co.'s wharf in northeastern part of Apalachicola.

Description.—Has a frontage of 220 feet, with warehouse 113 feet front, running back 48 feet. Platform in front of property 8 feet wide, built on piling with framework. Back of the platform has been filled in with oyster shells. There is electric lights and water at this wharf; has 7½ feet of water; is owned and operated by the Cypress Lumber Co.

Extent and method of use.—The Cypress Lumber Co. stores all shingles shipped by river in this warehouse or on the wharf. It is then transferred by hand to the river steamers or to barges and loaded on vessels in the harbor.

General efficiency.—Very efficient.

Terms and conditions.—Free to all vessels handling Cypress Lumber Co.'s products. No other traffic carried on at this wharf.

Physical connections.—The rails of the Apalachicola Northern Railroad extend onto this wharf; the streets of Apalachicola also connect with it.

Contract for interchange of traffic.—None known.

Connection by highways.—By shell road.

Necessity for additional facilities.—The present facilities, it appears, are adequate.

TARPON WHARF, APALACHICOLA.

General location.—Southeast corner of Cypress Lumber Co.'s property, just above center of Apalachicola.

Description.—Has platform built of piling and framework, 158 feet frontage, 8 feet wide in front of warehouse, and 52 feet wide south of warehouse. Warehouse has frontage of 122 feet, running back 54 feet. Back of the platform has been filled in with oyster shells. There are no lights or water. Seven to 8 feet of water at this dock at mean low water.

Extent and method of use.—All river and coastwise steamers use this wharf. It is used more extensively than any other wharf on the

Apalachicola River. The amount of tonnage could not be obtained, but this is considered the general wharf for local freight as well as freight to be shipped by rail. All freight is stored in warehouse and transferred by hand to boats and railroad.

General efficiency.—Poor.

Terms and conditions.—Open to all carriers on equal terms. Minimum charge of from 1 cent to 4 cents per 100 pounds made on classified articles. Minimum charge 25 cents per package.

Physical connections.—Connects with the Apalachicola Northern Railroad.

Contract for interchange of traffic.—None known.

Connection by highways.—A poorly constructed shell road connects with this terminal.

Necessity for additional facilities.—No additional facilities needed.

PEOPLES, OR COOMBS WHARF, APALACHICOLA.

General location.—About the center of the city of Apalachicola, Fla.

Description.—Terminal has a platform 21 feet wide and 186 feet long built on piling with framework, and has a two-story house 155 feet front and 50 feet deep. The second story is occupied by the Coombs Co., lumber merchants. An oyster shack is located on ground floor at southeast corner. Also the ticket office of the Georgia, Florida & Alabama Railway Co. is located here. A covered shed for freight is also on the ground floor. The steamer *Crescent City* lands here, and is owned by the above company, whose terminus is Carrabelle, Fla. This steamer makes one round trip between Carrabelle and Apalachicola daily, and connects with trains of the Georgia, Florida & Alabama Railway. There is from 10 to 12 feet of water in front of this dock. This terminal is supplied with electric lights and city water.

Extent and method of use.—All freight and passengers over the Georgia, Florida & Alabama Railway at Carrabelle, Fla., are handled here. Passengers and freight are forwarded direct from this wharf to all points. The Coombs Co. also uses this wharf in connection with their business.

General efficiency.—Sufficient for the present amount of traffic, which would not justify better methods.

Terms and conditions.—The Georgia, Florida & Alabama Railway have right of way over all other boats. Special terms may be arranged with the above company.

Physical connections.—The rails of the Georgia, Florida & Alabama Railway connect with this terminal.

Contract for interchange of traffic.—None known.

Connection by highways.—A shell road, which is now in very poor condition, connects with this terminal.

Necessity for additional facilities.—The present facilities appear to adequately serve their purpose.

CUNNINGHAM WHARF, APALACHICOLA.

General location.—South of the center of Apalachicola, Fla.

Description.—Built entirely of piling, with framework. Has a platform 274 feet along front by 17 feet wide, and has a warehouse

210 by 61 feet; also side track from Apalachicola Northern Railroad. Has electric lights and city water. There is about 7½ feet of water in front of this wharf at mean low water. Is owned by Beverly & Marks and operated by Cunningham Grocery Co.

Extent and method of use.—This wharf was built primarily for the Cunningham Grocery Co., a wholesale grocery concern; but freight is also handled for the general public.

General efficiency.—It is as efficient as could be made so long as goods are handled by hand.

Terms and conditions.—Open to all carriers on equal terms. Rates in carload lots 15 cents per ton either by rail or water; less than carload lots, 30 cents per ton.

Physical connections.—The rails of the Apalachicola Northern Railroad extend onto this wharf.

Contract for interchange of traffic.—None known.

Connection by highways.—This wharf is connected with shell road.

Necessity for additional facilities.—The present commerce would not justify installation of better facilities.

COMPRESS WHARF, APALACHICOLA.

General location.—Located in the southern part of the city of Apalachicola, near the bay.

Description.—Wharf extends along water front 205 feet, and is 114 feet wide. Constructed of piling, with framework, partly filled in with oyster shells. Has warehouse 152 by 67 feet, with side track on west side of wharf. Is owned by the Apalachicola Compress Co.

Extent and method of use.—Has never been used.

General efficiency.—Very good.

Terms and conditions.—None.

Physical connections.—The rails of Apalachicola Northern Railroad connect with this terminal.

Contract for interchange of traffic.—None.

Connections by highways.—No improved highways connect.

Necessity for additional facilities.—None deemed necessary.

ST. JOSEPH BAY, FLA.

WHARF OF THE APALACHICOLA NORTHERN RAILROAD.

General location.—This wharf is located on the northern shore of St. Joseph Bay, Fla.

Description.—This structure is of the ordinary pile type, capped and floored, creosoted piling being used. There are no warehouses. The wharf connects with the Apalachicola Northern Railroad and extends to about 22 feet of water.

Extent and method of use.—There are no mechanical devices for handling freight. This port has but recently been opened to commerce. Lumber and timber are the only commodities handled, shipments being made by seagoing vessels. Wharf is used by all craft entering the port upon the same terms.

General efficiency.—The present commerce appears to be adequately served by this structure, but upon completion of improvement of this harbor under act of 1912 the wharf and its facilities will be greatly amplified.

Terms and conditions.—A small charge is made, based upon the tonnage of vessels using this dock. In case of small vessels the charges are frequently waived. These charges are made simply for upkeep of dock and not for income.

Physical connections.—The rails of the Apalachicola Northern Railroad connect with this wharf. No other connection exists.

Contract for interchange of traffic.—No such contract exists.

Connection by highways.—No improved highways connect with this terminal.

Necessity for additional terminals.—It is not thought that additional terminals will be required if the present structure is enlarged as outlined above under "General efficiency." Photographs showing the existing terminal are forwarded herewith.

FLINT RIVER, GA.

ALBANY, GA.

Landing located about 1 mile from the center of town of Albany, Ga., on west bank of river. No wharf or terminal facilities; simply a natural landing with no improvements. The amount of business done at this point is small and all local, and would not justify better facilities at present. Open to all carriers on equal terms. There are no physical connections and no improved highways.

BAINBRIDGE, GA.

General location.—There is no wharf at this point; simply a warehouse and hoist located on bank of river, about one-half mile from the center of Bainbridge, Ga.

Description.—Terminal consists of warehouse with double-track steam hoist to river, with railroad spur track alongside of warehouse. The Atlantic Coast Line Railway Co. owns the hoist and warehouse.

Extent and method of use.—Through freight is hauled up to the warehouse by hoist, unloaded and transferred into cars. Originally freight was unloaded about one-fourth of a mile above present hoist, and handled entirely by drays. Considerable through freight is handled at this point, but the facilities are not taxed to their full capacity.

General efficiency.—It appears to meet the requirements.

Terms and conditions.—Open to all carriers on equal terms. Through traffic taxed from 2 to 5 cents per 100 pounds on articles under classification. The local business is taxed 50 per cent of water carrier freight rates.

Physical connection.—The tracks of the Atlantic Coast Line Railway connect with this point.

Contract for interchange of traffic.—None known.

Connection by highways.—No improved highways connect with this landing.

Necessity for additional facilities.—The present facilities appear to be adequate.

CHATTAHOOCHEE RIVER, GA. AND ALA.

WHARF AT FORT GAINES, GA.

General location.—Location of landing is alongside of marl bank, about one-half mile from the town of Fort Gaines, Ga.

Description.—Simply a natural landing with a warehouse. There is an inclined track leading from the water's edge to the warehouse. Freight trucks used on this track are operated by hand capstan.

Extent and method of use.—Used only for local traffic, of a very limited amount. Day labor used entirely.

General efficiency.—As good as the volume of traffic will justify.

Terms and conditions.—Open to all carriers on equal terms. For storage, a charge of from 2 cents to 5 cents per 100 pounds is made.

Physical connections.—No rail connections.

Contract for interchange of traffic.—Through rates upon freight may be obtained upon application, the terms and conditions being dependent upon initial point and point of destination.

Connection by highways.—No improved highways connect with this terminal.

Necessity for additional facilities.—Terminal appears to meet the necessity, as the business is entirely local and of small volume.

WHARF AT EUFAULA, ALA.

General location.—This wharf is located under a high bluff about 1 mile northeast of the town of Eufaula, Ala.

Description.—Wharf consists of pine piling, capped and decked. No mechanical devices for the handling of freight are installed. Warehouse provided.

Extent and method of use.—The commerce at this point is practically all local. The freight is handled entirely by day labor.

General efficiency.—The facilities afforded are ample for the locality, but the mode of transferring from boat to warehouse is very inefficient.

Terms and conditions.—Not open to all carriers on equal terms. The Merchants & Planters Steamboat Co. have an agreement by which they pay $30 per month for the privilege of landing as many times and as many boats as they desire. All others pay $2.50 for each landing. Owned by the Eufaula Wharf Co.

Physical connections.—No railroad connects with this wharf.

Contract for interchange of traffic.—Freight can be handled on through bills of ladings—transfer charges from wharf to railroad are included in the through rates, which vary with the commodity, initial point, and point of destination.

Connection by highways.—No improved highways connect.

Necessity for additional facilities.—The present facilities appear to meet the demands of this locality.

WHARF AT COLUMBUS, GA.

General location.—This wharf is situated in the northwestern part of the city of Columbus, Ga., immediately below the Central of Georgia Railway bridge.

Description.—This wharf is of the inclined type; that is, it lies parallel to the bank, the upper end being built sufficiently high to prevent overflow by high water; the lower end of the wharf extending slightly beyond the low-water mark. This enables a boat to lay alongside at any stage of water (see photograph marked "No. 1"). This wharf is 24 feet wide at its lower end and 34 feet wide at its upper end. It is formed by planking or decking, supported on framing which rests on the river bank on one side and a rubble retaining wall on the water side.

Extent and method of use.—All freight handled by boats passes over this wharf, is loaded or unloaded by day labor and drays, and hauled to railroad or local warehouses.

General efficiency.—Being provided with no transfer facilities, and being in reality only an inclined landing, it is deemed inefficient. Transfer charges of from 2 cents to 5 cents per 100 pounds is made upon commodities of different classifications.

Terms and conditions.—Wharf is owned by the city of Columbus, and a charge of $5 is made for each boat landing at the wharf. No other charges are made. No charges are made against crafts belonging to the United States.

Physical connections.—Connects with the streets of Columbus, Ga.

Contract for interchange of traffic.—None known.

Connection by highways.—Paved streets connect with this wharf.

Necessity for additional facilities.—Due to the volume of freight handled at this point it is thought that better facilities should be provided. A better wharf should be built, and a track connecting upper landing with Seaboard Air Line should be laid.

COLUMBIA, ALA.

General location.—This landing is about one-fourth of a mile east of the town of Columbia, Ala.

Description.—It is located on a marl bank. There is no wharf, only a natural landing provided with a warehouse approximately 50 feet above low water, also sidetrack from the Central of Georgia Railway to warehouse. There is also a small storeroom near the landing for storing local freight, provided with tram cars operated by cable and gasoline engine. The Central of Georgia Railway has a siding alongside of warehouse.

Extent and method of use.—This terminal is not taxed to its full capacity. During extreme low water there is a considerable through business. Ordinarily freight is stored in small storehouse near the landing, the work being performed by the steamboat's crew. For through freight the tram cars are operated and goods placed in warehouse and from there loaded direct into cars.

General efficiency.—The present arrangement is very efficient and adequate for all demands.

Terms and conditions.—Open to all carriers on equal terms, a charge of from 2 cents to 5 cents per 100 pounds being made.

Physical connections.—The rails of the Central of Georgia Railway connect with this terminal.

Contract for interchange of commerce.—None known.

Connection by highways.—No improved highways connect with this terminal.

Necessity for additional facilities.—The present facilities are deemed sufficient.

WHARF AT ALAGA, ALA.

General location.—Warehouse and landing located about one-half mile north of the Atlantic Coast Line Railway bridge.

Description.—This point is simply a transfer station, consisting of one small warehouse. Natural landing being used.

Extent and method of use.—Freight is handled both by day labor and one small hoist. The hoist is extensively used by all carriers. Practically all freight handled is through freight. The hoist is not used to its full capacity.

General efficiency.—The method employed is very efficient and meets all requirements, though is not taxed to its full capacity.

Terms and conditions.—Terminal is owned by the Atlantic Coast Line Railway and is open to all carriers on equal terms, a charge of from 2 cents to 5 cents per 100 pounds being made on articles of classification.

Physical connections.—The rails of the Atlantic Coast Line connect with this terminal.

Contract for interchange of traffic.—None known.

Connection by highways.—No improved highways connect with this terminal.

Necessity for additional facilities.—The present facilities appear sufficient.

ST. ANDREWS BAY, FLA.

WHARF OF ST. ANDREWS & ATLANTA RAILROAD CO.

General location.—This wharf is located on the northern shore of St. Andrews Bay, about three-fourths of a mile west of Panama City.

Description.—Structure consists of ordinary pine piling, not creosoted, capped and floored, and extends to about 12 feet of water. On the outer end of this wharf there is a shed for the storage of freight. This shed is about 150 feet long. Photographs are inclosed herewith.

Extent and method of use.—The only freight handled at this wharf is that handled by the steamer *Tarpon*, a coastwise steamer plying between Mobile, Pensacola, St. Andrews, Apalachicola, and Carrabelle.

General efficiency.—The above trade consists of general merchandise, packages, etc., and this wharf apparently answers the present purpose. There are no transfer facilities.

Terms and conditions.—There are no wharf charges. The steamer *Tarpon* is the only carrier that receives or delivers freight at this wharf.

Physical connections.—The rails of the St. Andrews & Atlanta Railroad extend onto this wharf.

Contract for interchange of traffic.—No contract exists for interchange of traffic.

Connection by highways.—No improved highways connect with this terminal.

Necessity for additional terminals.—It is thought that the present terminal would be amply sufficient were it extended to 22 feet of water, in which case it would meet the demands of commerce, which will be the outgrowth of the present project of improvement of this bay. It might develop later that additional transfer facilities should be provided. This can only be ascertained after the project now carried on shall have been completed.

CHOCTAWHATCHEE RIVER, FLA. AND ALA.

There are no terminal transfer facilities on this stream, and so far as has been learned, none are required other than the small landings used by small crafts.

HOLMES RIVER, FLA.

There are no transfer facilities on this stream, and so far as has been learned, none are required other than the small landings used by small crafts.

NARROWS OF SANTA ROSA SOUND, FLA.

There are no terminal transfer facilities on this improvement, and so far as has been learned, none are required other than the small landings used by small craft.

BLACKWATER RIVER, FLA.

There are no terminal transfer facilities on this stream, and so far as has been learned, none are required other than the small landings used by small crafts.

PENSACOLA HARBOR, FLA.

TARRAGONA STREET WHARF.

General location.—This wharf is located on the north shore of Pensacola Bay, at the foot of Tarragona Street, in the city of Pensacola.

Description.—The foundation of this wharf consists of creosoted piles and framework. The length is 1,950 feet, width 130 to 140 feet. There are two warehouses on this wharf, one divided into 11 compartments, and 50 feet wide by 404 feet long; the other warehouse is 50 feet by 410 feet. A complete water system, connected with the

city water works for fire protection and water supply, and a complete lighting system is installed.

Extent and method of use.—This wharf is owned by the Louisville & Nashville Railroad Co., and is operated in connection with others of its wharves. Vessels lie alongside and receive their cargoes direct from cars or from the warehouse, using their own cargo machinery for handling when possible. This dock is also provided with a W. C. Hunt automatic railway, which runs above the top. By means of this railway freight in bulk or freight in packages can be deposited in any of the storehouse compartments. It is also provided with a 500,000-bushel capacity grain elevater, situated at its shore end. Belt conveyers, having a capacity of 10,000 bushels per hour, connect the elevator with the outer end. The elevator is of modern design, equipped with improved machinery. There are no special mechanical devices for handling specific commodities other than the grain elevator.

General efficiency.—It is reported by masters of all vessels that cargoes are handled with dispatch at this wharf. The depth of water available is 28 feet.

Terms and conditions.—The rate charged for berths is three-tenths of a cent registered ton per day when full cargoes are taken. When partial cargoes are taken special rates are made. Cargoes consigned to the Louisville & Nashville Railroad or vessels chartered to receive cargoes at this wharf have preference over all other vessels having no previous arrangement; that is, vessels carrying commodities competing with the Louisville & Nashville Railroad from districts within their territory are not permitted to load or unload such commodities at this wharf.

Physical connections.—Physical connections exist with the rails of the Louisville & Nashville Railroad, also with the electric street railway of Pensacola.

Contract for interchange of traffic.—No other contract than that stated under "Terms and conditions" is known.

Connection by highways.—The streets of the city of Pensacola connect with the shore end of this terminal.

COMMANDANCIA STREET WHARF.

General location.—This wharf is located upon the northern shore of Pensacola Bay, at the foot of Commandancia Street, in the city of Pensacola.

Description.—The foundation of this dock consists of creosoted piling and framework, is 2,065 feet in length, and has a width south of the bulkhead line of 108 feet. The warehouse on this dock is a two-story structure, with a roof area of 105 by 1,200 feet. Fifty feet of this roof width is occupied by a storehouse, leaving a covered platform on each side 25 feet by 1,200 feet. A complete water system, connecting with the city water works, and a complete electric lighting system is installed.

Extent and method of use.—This dock is owned and operated by the Louisville & Nashville Railroad Co., and is extensively used in connection with other wharves owned by that company. The freight handled is included in table given at the close of this report. Car-

riers lie alongside and receive their cargoes direct from cars or from the warehouse, using their own cargo machinery for handling when possible. Five tracks run alongside of the warehouse on wharf: three of these tracks are on the lower-grade level and two on the upper. The total length of railroad track pertaining to this structure is 18,490 feet. These tracks admit of loading or unloading direct from the vessel or warehouse or from cars direct into vessels or into warehouse. Vessels while loading or unloading at this wharf can be supplied with bunker coal without interference with loading.

General efficiency.—It is reported that all vessels are handled with dispatch at this dock. The available depth is 28 feet.

Terms and conditions.—The rates charged for berths are three-tenths of a cent per registered ton per day when full cargoes are taken. If partial cargoes are taken special rates are made. Vessels carrying cargoes consigned to the Louisville & Nashville Railroad, or chartered to receive cargoes at this wharf, have preference over other vessels not having previously arranged for berths.

Physical connections.—This wharf connects with the rails of Louisville & Nashville Railroad, also with rails of street railway company of Pensacola.

Contract for interchange of traffic.—No other contract than that outlined under "Terms and conditions" is known.

Connection by highways.—Improved highways connect with the shore end of this wharf.

MUSCOGEE WHARF.

General location.—This dock is located upon the northern shore of Pensacola Bay, about 1¾ miles northeast of the city of Pensacola.

Description.—The foundation of this wharf consists of creosoted piling and framework, upon which is erected trestles for carrying overhead track. A building suitable for office purposes is erected near its outer end. The total length of this wharf is 2,440 feet; the width of the outer end is 120 feet, and of the shore end 46 feet. The area is 190,200 square feet; of this area 108,150 square feet is in 20 feet of water. There are 7 railroad tracks pertaining to this wharf, aggregating 11,600 feet. The trestle is provided with 14 coal and 4 grain chutes. A complete water system, connected with the city water works, and a complete electric lighting system is installed. Coal, grain, and like commodities handled at this wharf are carried in bottom-dump cars and, by means of chutes, are transferred into vessels. There are no other mechanical devices installed. This wharf is owned by the Louisville & Nashville Railroad Co.

Extent and method of use.—There is a large local bunker trade carried on at this wharf, also some traffic in grain. Vessels lie alongside and receive cargoes through chutes.

General efficiency.—Vessels receiving cargoes at this wharf are handled with dispatch, no complaints being made.

Terms and conditions.—No charges are made against vessels receiving cargoes at this wharf. Open to all vessels upon equal terms.

Physical connections.—Connection exists between this wharf and the rails of the Louisville & Nashville Railroad, also with the rails of the electric street railway of Pensacola.

Contract for interchange of traffic.—No contract known.

Connection by highways.—No improved highways connect with this terminal.

PERDIDO WHARF.

General location.—This wharf is located on the northern shore of Pensacola Bay, within the city limits, but about 1 mile west of the city proper.

Description.—This terminal is of the ordinary pile-and-cap construction, floored over. Piles not creosoted. The rails of the Perdido & Pensacola Railway connect with this wharf by double track. No mechanical devices are installed.

Extent and method of use.—This wharf is used extensively for loading lumber onto vessels. Lumber and timber is handled by hand and, at times, by the vessel's machinery. A very large lumber trade is carried on at this wharf. Vessels lie alongside and receive lumber from carriers handled by laborers. The wharf is owned by the Perdido & Pensacola Railway Co.

General efficiency.—The method of handling lumber by labor, as above stated, is crude, notwithstanding which fact vessels are loaded very quickly. Its efficiency, in this case, depends entirely upon the number of laborers employed.

Terms and conditions.—The rates charged are three-tenths of a cent per registered ton per day, all vessels having access to this wharf on equal terms.

Physical connections.—The rails of the Perdido & Pensacola Railway connect with this wharf.

Contract for interchange of traffic.—None known.

Connection by highways.—No improved highways connect with this terminal.

PALAFOX WHARF.

General location.—This wharf is located on the northern shore of Pensacola Bay, at the foot of Palafox Street, in the city of Pensacola.

Description.—Wharf consists of piling, capped and floored, much of the space being filled in with ballast.

Extent and method of use.—The wharf is owned by the Saunders & Wells Fish. Co., and is used mainly for their own purposes—the landing of fishing smacks when they are unloading fish. Occasionally sailing vessels unload their ballast at this wharf. No cargoes are received by water carriers.

General efficiency.—Owing to the character of business carried on at this wharf no remarks can be made under this head.

Terms and conditions.—None.

Physical connections.—This wharf connects with the rails of the Pensacola Street Railway Co. and, in this manner, with the rails of the Louisville & Nashville Railway Co.

Contract for interchange of traffic.—None.

Connection by highways.—The wharf connects with Palafox Street, city of Pensacola.

JEFFERSON STREET WHARF.

General location.—This wharf is located upon the north shore of Pensacola Bay, at the foot of Jefferson Street, in the city of Pensacola.

Description.—The structure consists of creosoted piling and framework, having no warehouse or sheds. Length, 160 feet by 80 feet wide. There are two tracks leading to the outer end of this wharf. No mechanical devices for handling freight, etc., installed on this wharf.

Extent and method of use.—This wharf is owned by the Louisville & Nashville Railroad Co. and is extensively used, as it handles all the naval stores at this point. The method of use is the transfer by day labor of naval stores from carriers, which come from the various tributaries of this harbor to cars.

General efficiency.—It appears to meet the demands of the locality, though the method of handling is crude. Installation of mechanical devices for handling the freight would possibly greatly facilitate the work.

Terms and conditions.—For carriers handling naval stores taken from points outside the territory controlled by the Louisville & Nashville Railroad all have equal service without charge for berth while discharging; vessels are not permitted to unload naval stores at this wharf if taken from within the limits of territory controlled by the Louisville & Nashville Railroad. No charge is made against vessels authorized to unload at this dock. When vessels receive cargoes of lumber, which they sometimes do, they are charged three-tenths of a cent per registered ton per day when full cargoes are taken; when partial cargoes are taken, special rates are made.

Physical connections.—Connection exists between this dock and the rails of the Louisville & Nashville Railroad, also with the electric street rails of the city of Pensacola.

Contract for interchange of traffic.—None known.

Connections by highways.—No improved highways connect with this wharf.

The traffic over the four wharves owned by the Louisville & Nashville Railroad Co., viz, Tarragona Street, Commandancia Street, Muscogee, and Jefferson Street Wharves, is shown by the following table:

Year.	Exports.	Imports.
1904	$14,811,676	[illegible]
1905	16,294,929	[illegible]
1906	19,641,601	[illegible]
1907	19,891,792	[illegible]
1908	18,680,125	[illegible]
1909	21,099,353	1,[illegible]
1910	20,326,527	2,[illegible]
1911	20,612,065	1,61[illegible]

[1] Value of imports for these years could not be obtained.

The above table applies to all Louisville & Nashville wharves at Pensacola, as separate accounting could not be obtained.

It is not thought that additional water terminals are necessary as the present wharves appear to take care of all traffic without congestion.

Photographs[1] are inclosed herewith.

[1] Not printed.